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jc644 U.S. PTO 03/31/00

UTILITY PATENT APPLICATION TRANSMITTAL
(Large Entity)

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Docket No. 99-082

Total Pages in this Submission 111

jc600 U.S. PTO 09/540709 03/31/00

TO THE ASSISTANT COMMISSIONER FOR PATENTS
Box Patent Application
Washington, D.C. 20231

Transmitted herewith for filing under 35 U.S.C. 111(a) and 37 C.F.R. 1.53(b) is a new utility patent application for an invention entitled:

SYSTEM TO ESTABLISH A CUSTOMER-SPECIFIED PRICE OF A PRODUCT AND TO MANAGE REDEMPTION OF THE PRODUCT AT THE ESTABLISHED PRICE

and invented by:

1.) Jay S. WALKER, 2.) Jose A. SUAREZ, 3.) Scott T. CASE, 4.) Michiko KOBAYASHI, 5.) Magdalena MIK 6.) John M. PACKES Jr., 7.) Geoffrey M. GELMAN

If a CONTINUATION APPLICATION, *check appropriate box and supply the requisite information:*

☐ **Continuation** ☐ **Divisional** ☒ **Continuation-in-part(CIP)** of prior application No.: **09/337,906**

Which is a:

☐ **Continuation** ☐ **Divisional** ☒ **Continuation-in-part(CIP)** of prior application No.: **08/889,589**

Which is a:

☐ **Continuation** ☐ **Divisional** ☐ **Continuation-in-part(CIP)** of prior application No.: _____

Enclosed are:

Application Elements

1. ☒ Filing fee as calculated and transmitted as described below
2. ☒ Specification having **66** pages and including the following:
   - a. ☒ Descriptive Title of the Invention
   - b. ☒ Cross References to Related Applications *(if applicable)*
   - c. ☐ Statement Regarding Federally-sponsored Research/Development *(if applicable)*
   - d. ☐ Reference to Microfiche Appendix *(if applicable)*
   - e. ☒ Background of the Invention
   - f. ☒ Brief Summary of the Invention
   - g. ☒ Brief Description of the Drawings *(if drawings filed)*
   - h. ☒ Detailed Description
   - i. ☒ Claim(s) as Classified Below
   - j. ☒ Abstract of the Disclosure

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Application Elements (Continued)

3. ☒ Drawing(s) *(when necessary as prescribed by 35 USC 113)*
   a. ☒ Formal Number of Sheets **35 (Figs. 1-27B)**
   b. ☐ Informal Number of Sheets _____
4. ☒ Oath or Declaration
   a. ☐ Newly executed *(original or copy)* ☒ Unexecuted
   b. ☐ Copy from a prior application (37 CFR 1.63(d)) *(for continuation/divisional application only)*
   c. ☒ With Power of Attorney ☐ Without Power of Attorney
   d. ☐ *DELETION OF INVENTOR(S)*
   Signed statement attached deleting inventor(s) named in the prior application, see 37 C.F.R. 1.63(d)(2) and 1.33(b).
5. ☐ Incorporation By Reference *(usable if Box 4b is checked)*
   The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.
6. ☐ Computer Program in Microfiche *(Appendix)*
7. ☐ Nucleotide and/or Amino Acid Sequence Submission *(if applicable, all must be included)*
   a. ☐ Paper Copy
   b. ☐ Computer Readable Copy *(identical to computer copy)*
   c. ☐ Statement Verifying Identical Paper and Computer Readable Copy

Accompanying Application Parts

8. ☐ Assignment Papers *(cover sheet & document(s))*
9. ☐ 37 CFR 3.73(B) Statement *(when there is an assignee)*
10. ☐ English Translation Document *(if applicable)*
11. ☐ Information Disclosure Statement/PTO-1449 ☐ Copies of IDS Citations
12. ☐ Preliminary Amendment
13. ☒ Acknowledgment postcard
14. ☒ Certificate of Mailing
    ☐ First Class ☒ Express Mail *(Specify Label No.):* **EL080833938US**

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Accompanying Application Parts (Continued)

15. ☐ Certified Copy of Priority Document(s) *(if foreign priority is claimed)*

16. ☐ Additional Enclosures *(please identify below):*

Fee Calculation and Transmittal

CLAIMS AS FILED

For	#Filed	#Allowed	#Extra		Rate	Fee
Total Claims	57	- 20 =	37	x	$18.00	$666.00
Indep. Claims	17	- 3 =	14	x	$78.00	$1,092.00
Multiple Dependent Claims (check if applicable) ☐						$0.00
					BASIC FEE	$690.00
OTHER FEE *(specify purpose)*						$0.00
					TOTAL FILING FEE	$2,448.00

☐ A check in the amount of to cover the filing fee is enclosed.

☒ The Commissioner is hereby authorized to charge and credit Deposit Account No. **50-0271** as described below. A duplicate copy of this sheet is enclosed.

- ☒ Charge the amount of **$2,448.00** as filing fee.
- ☒ Credit any overpayment.
- ☒ Charge any additional filing fees required under 37 C.F.R. 1.16 and 1.17.
- ☐ Charge the issue fee set in 37 C.F.R. 1.18 at the mailing of the Notice of Allowance, pursuant to 37 C.F.R. 1.311(b).

Signature

Dated: **March 31, 2000**

Nandu A. Talwalkar
Attorney for Applicants, Reg. No.: 41,339
22927

22927
PATENT TRADEMARK OFFICE

cc:

Attorney Docket No. 99-082

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Jay S. Walker et al.	Customer No.:	22927
For:	SYSTEM TO ESTABLISH A CUSTOMER-SPECIFIED PRICE OF A PRODUCT AND TO MANAGE REDEMPTION OF THE PRODUCT AT THE ESTABLISHED PRICE	Examiner:	Not Yet Assigned
Serial No.:	Not Yet Assigned	Group Art Unit:	Not Yet Assigned
Filing Date:	March 31, 2000	Docket No.:	99-082

Box Patent Application
Assistant Commissioner for Patents
Washington, DC 20231

JC600 U.S. PTO 09/540709 03/31/00

TRANSMITTAL LETTER

Dear Sir:

Applicants hereby submit the following documents for the above-identified patent application:

1. Certificate of Express Mailing No. EL080833938US;
2. Utility Patent Application Transmittal (in duplicate);
3. Combined Declaration and Power of Attorney (unsigned);
4. Patent Application (66 pgs.);
5. Formal Drawings (35 Figs. 1A-27B);
6. Postcard.

The Assistant Commissioner is hereby authorized to charge the associated fee in the amount of $2,448.00 to Deposit Account No. 50-0271, Order No. 99-082. The Commissioner is further authorized to charge any additional fees which may be required for the submission of this paper, or to credit any overpayment, to Deposit Account No. 50-0271, Order No. 99-082. A duplicate copy of this authorization is attached for such purpose.

Respectfully submitted,

March 31, 2000

Nandu A. Talwalkar
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Certificate of Express Mailing

I hereby certify that this correspondence is being deposited with the United States Postal Service via Express Mail in an envelope labeled EL080833938US with sufficient postage addressed to Box Patent Application, Assistant Commissioner for Patents, Washington, DC 20231 on March 31, 2000.

Nalini P. Sahadeo	N. Sahadeo	03/31/00
Typed Name of Person Making Deposit	Signature	Date of deposit

SYSTEM TO ESTABLISH A CUSTOMER-SPECIFIED PRICE OF A PRODUCT AND TO MANAGE REDEMPTION OF THE PRODUCT AT THE ESTABLISHED PRICE

CROSS-REFERENCE TO RELATED APPLICATIONS

This application hereby claims priority from U.S. Provisional Application Serial No. 60/173,458 filed December 29, 1999, titled "Name Your Own Price for Gas," the contents of which are incorporated by reference herein for all purposes.

This application is a continuation-in-part of co-pending U.S. Patent Application Serial No. 09/337,906, filed June 22, 1999, for "Purchasing Systems and Methods Wherein a Buyer Takes Possession at a Retailer of a Product Purchased Using a Communication Network", and of co-pending U.S. Patent Application Serial No. 08/889,589, filed July 8, 1997, for "System and Method for Establishing and Managing Subscription Purchase Agreements Including Commitments to Purchase Good Over Time at Agreed Upon Prices", the contents of which are incorporated by reference herein for all purposes.

This application is related to co-pending U.S. Patent Application Serial No. 09/338,723, filed September 2, 1999, for "Purchasing Systems and Methods Wherein a Buyer Takes Possession at a Retailer of a Product Purchased Using a Communication Network", the contents of which are incorporated by reference herein for all purposes.

FIELD OF THE INVENTION

The present invention relates to the sale and redemption of products. More specifically, the present invention relates to a system enabling a customer to establish a customer-specified price per unit of a product, and to redeem the product from a retailer.

BACKGROUND OF THE INVENTION

Conventional product retailers employ many methods designed to encourage customers to visit their retail stores. According to one method, a retailer advertises a sale price of a product which is less than the retailer's cost for the product. The product is referred to as a "loss leader", because a sale at the sale price results in a loss for the retailer. Accordingly, the advertised sale price is not intended to generate profits, rather, the sale price is simply intended to draw a customer into the retailer's store. Of course, the retailer hopes that the customer purchases other products once drawn into the store, and that profits from the sale of these other products offset any losses incurred due to the sale of the loss leader.

The retailer also hopes that the customer's visit will help to establish a behavior pattern by which the customer will tend to re-visit the store.

Several problems exist with the above-described method. First, many manufacturers of desirable name-brand products prohibit retailers from selling the name-brand products at a deep discount for fear of dilution of their brands' market status. Therefore, most products offered as loss leaders are not popular and are limited in their ability to draw customers to a store. Second, the method does not prevent a customer from purchasing only the loss leader and no other products from the retailer, in which case the retailer simply incurs a loss. In addition, and despite the retailer's hopes, the customer may never again visit the store after purchasing the loss leader.

One system has been developed to address the foregoing deficiencies. The system, described in detail in commonly-assigned co-pending Application Serial No. 08/889,589, entitled "System and Method for Establishing and Managing Subscription Purchase Agreements Including Commitments to Purchase Good Over Time at Agreed Upon Prices", generally allows a customer to establish an agreement with a retailer to redeem a specified number of units of a product at a fixed price over a specified period of time or a specified number of visits. Customers are encouraged to use the system because the fixed price enables the customers to guard against price increases and, in some embodiments, the fixed price is less than the retail price for the product. Retailers are advantaged because customers must periodically re-visit their stores according to the agreements, which may influence the customers to visit the stores even after the agreements are completed, and because the agreements provide locked-in prices, reliable indications of future demand, and a competitive advantage over retailers who do not honor such agreements.

Another system is needed for establishing and managing agreements for the purchase of products which may be priced per unit and redeemed in fractional units. Gasoline is one such fractionally-redeemable product. In addition, because of shortcomings in conventional systems, purchases at gasoline stations are promoted using conventional techniques such as frequent buyer programs, prepaid debit cards, and the like. These techniques do not provide retailers with any agreement resulting in locked-in prices, reliable indications of future demand, or strong influences over customer behavior. In addition, these techniques do not allow customers to guard against price increases or to pay less than a retail price for a product. Accordingly, these systems are not particularly attractive to retailers or customers. As a result, what is needed is an improved system for selling products priced per unit and redeemable in fractional units.

SUMMARY OF THE INVENTION

In order to address the foregoing, the present invention provides, in one aspect, a system to establish an agreement with a customer to provide a number of units of a product for an agreement price, to arrange with a retailer to have the product redeemed at the retailer, and to receive data indicating a redemption of a fractional number of units of the product.

In another aspect, the present invention provides a system to receive a redemption identifier from a customer, to retrieve data indicating an agreement to provide a number of units of a product for a customer-specified agreement price based on the redemption identifier, and to provide a second number of units of the product to the customer, wherein the second number is a non-integer.

In an additional aspect, the present invention concerns means for creating an agreement with a customer to provide a number of units of a product for an agreement price, means for planning with a retailer to have the product redeemed at the retailer, and means for obtaining data indicating a redemption of a fractional number of units of the product.

As a result of each of the foregoing aspects, a retailer is provided with indications of future demand and a system to establish customer loyalty. Moreover, a customer is provided with convenience, protection against price increases, and an ability, in some embodiments, to pay less than a retail price for a product.

With these and other advantages and features of the invention that will become hereinafter apparent, the nature of the invention may be more clearly understood by reference to the following detailed description of the invention, the appended claims and to the several drawings attached hereto.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1A is a block diagram of an overall architecture of a system according to one embodiment of the present invention;

FIG. 1B is a block diagram of an overall architecture of a system according to one embodiment of the present invention;

FIG. 2A is a block diagram of a controller according to one embodiment of the present invention;

FIG. 2B is a block diagram of a controller according to one embodiment of the present invention;

FIG. 3 is a block diagram of a customer device according to one embodiment of the present invention;

FIG. 4A is a block diagram of a retailer device according to one embodiment of the present invention;

FIG. 4B is a block diagram of a retailer device according to one embodiment of the present invention;

FIG. 5 is a block diagram of a customer terminal according to one embodiment of the present invention;

FIG. 6 illustrates a tabular representation of a portion of a retailer database according to one embodiment of the present invention;

FIG. 7 illustrates a tabular representation of a portion of a retailer restriction database according to one embodiment of the present invention;

FIG. 8 illustrates a tabular representation of a portion of a retailer settlement database according to one embodiment of the present invention;

FIG. 9 illustrates a tabular representation of a portion of a subsidy database according to one embodiment of the present invention;

FIG. 10 illustrates a tabular representation of a portion of a redemption condition database according to one embodiment of the present invention;

FIG. 11 illustrates a tabular representation of a portion of a customer database according to one embodiment of the present invention;

FIG. 12 illustrates a tabular representation of a portion of an agreement database according to one embodiment of the present invention;

FIG. 13 illustrates a tabular representation of a portion of a retailer redemption database according to one embodiment of the present invention;

FIG. 14 is a flow chart of process steps of a transaction according to one embodiment of the present invention;

FIG. 15 is a flow chart of process steps to establish an agreement according to one embodiment of the present invention;

FIG. 16 is a flow chart of process steps to receive an offer according to one embodiment of the present invention.

FIG. 17 illustrates tables associating discount amounts and acceptance probabilities according to one embodiment of the present invention.

FIG. 18 is a flow chart of process steps to determine acceptability of an offer according to one embodiment of the present invention.

FIG. 19, comprising FIG. 19A and FIG. 19B, illustrates tables used to determine a retailer to bind to an agreement according to one embodiment of the present invention.

FIG. 20 is a general flow chart of process steps of a product redemption according to one embodiment of the present invention;

FIG. 21 is a flow chart of process steps to authorize a product redemption according to one embodiment of the present invention;

FIG. 22 is a flow chart of process steps to manage a product redemption according to one embodiment of the present invention;

FIGS. 23A and 23B illustrate a detailed flow chart of process steps to manage a product redemption according to one embodiment of the present invention;

FIGS. 24A and 24B illustrate a detailed flow chart of process steps to manage a product redemption according to one embodiment of the present invention;

FIGS. 25A and 25B illustrate a detailed flow chart of a product redemption according to one embodiment of the present invention;

FIG. 26 is a general flow chart of process steps of a settlement process according to one embodiment of the present invention; and

FIGS. 27A and 27B illustrate a detailed flow chart of process steps of a settlement process according to one embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

To insure clarity of the following description, set forth below are definitions of terms used herein. The scope of the present invention is not to be deemed limited by the definitions.

Agreement Product: A product of which a customer agrees to purchase a number of units. An agreement product may be specified in general terms. For example, a customer may specify as an agreement product any gasoline having an octane rating between 85 and 90.

Agreement Price: A price for which a customer agrees to purchase a number of units of an agreement product. Examples include a total purchase price for the number of units, a price per unit, a percentage off a retail price, and a dollar amount less than a retail price. In a case that a product is full service gasoline, the agreement price may be a retail price of self-service gasoline.

Offer Product: A product of which a customer offers to purchase a number of units. After the offer is accepted, the offer product becomes an agreement product.

Offer Price: A price for which a customer offers to purchase a number of units of an offer product. The offer price becomes an agreement price once the offer is accepted.

Retailer: Any person, group of persons or entity such as a manufacturer, department store, grocery store, or gasoline station from which a customer can redeem an agreement product.

Settlement Price: A price for which a retailer agrees to provide a product to a customer. The settlement price may be established by an agreement between the retailer and a third party providing a system according to the invention. The settlement price may be paid to a party other than the retailer.

Settlement Schedule: A schedule by which a settlement price is paid to a retailer, either by a customer, a third party, or both. A settlement schedule may be time-based (monthly), event-based (after each redemption), or otherwise defined.

As an introduction to the following detailed description, a particular embodiment of the present invention will now be presented. According to this embodiment, a customer establishes an agreement to purchase a number of gallons of gasoline and redeems the gasoline from a gasoline retailer. Specifically, the customer uses a personal computer to request a web page from a web site provided by a controller. The customer enters location information, such as a ZIP code, and information specifying an offer product, such as 89 octane, into the web page and transmits the information to the controller. In response, the controller identifies gasoline retailers that provide the offer product and are located within the ZIP code. The customer selects several of the identified retailers, and is presented with an average price per gallon offered by the selected retailers for the specified product. The customer then selects an offer price, which is a price per gallon that may be less than the average price, selects a desired number of gallons of the offer product, and transmits the selections along with payment information such as a credit card account number to the controller.

The controller determines that the offer price is acceptable and transmits a web page notifying the customer that the offer has been accepted, thereby establishing an agreement to provide the desired number of gallons of the offer product, now the agreement product, for the offer price, now the agreement price. In addition, the controller specifies at least one gasoline retailer at which the agreement product may be redeemed under the agreement. The customer's credit card account is then charged for the agreement. The credit card account is charged an amount equal to the agreement price multiplied by the number of desired gallons.

In order to redeem the gasoline under the agreement, the customer presents a redemption identifier to one of the specified gasoline retailers. The redemption identifier may be information identifying the agreement encoded on a magnetic strip of an identification card. The card is swiped through a card reader provided by a gasoline pump, and the card reader extracts the information encoded thereon. The identifying information is then transmitted to the controller, which uses the information to retrieve agreement information corresponding to the agreement previously established with the customer. The controller transmits the agreement information back to the gasoline pump, which is set to dispense up to the amount specified under the agreement. The customer redeems a desired number of gallons and the redeemed number of gallons is transmitted to the controller. The controller updates the agreement information to reflect the redemption and pays the gasoline retailer an agreed upon settlement price per gallon multiplied by the redeemed number of gallons.

It should be noted that the amount received by the controller from the customer may be less than a payment made by the controller to the retailer. The present invention allows the controller to make up for this shortfall in several ways. For example, prior to accepting an offer, the controller may calculate that the offer, if accepted, will result in a $10.00 shortfall. Accordingly, the controller checks a database of subsidy offers and finds that a long distance provider will provide a $20.00 subsidy for each customer who agrees to switch to the long distance service provider. Therefore, prior to accepting the offer, the controller determines if the customer is willing to switch to the long distance provider. If so, the controller accepts the offer, receives the $20.00 subsidy from the long distance provider, uses $10.00 of the $20.00 to make up for the shortfall, and keeps $10.00 as profit.

It should be noted that the foregoing example is intended as an introduction to the detailed description, and the present invention is not limited to the particular steps described above.

SYSTEM

Turning to the drawings, FIG. 1A shows a block diagram of a system 10 according to embodiments of the present invention. As shown, the system 10 includes a controller 200 in communication with customer devices 100, 101 and 102 as well as retailer devices 300, 301 and 302. Although the communication media between the customer devices 100, 101 and 102, the retailer devices 300, 301 and 302 and the controller 200 are represented by dedicated connections, it should be understood that one or more of the customer devices 100, 101 and

102 and the retailer devices 300, 301 and 302 may be connected to a network, such as a Local Area Network (LAN) or a Wide Area Network (LAN), to which is also connected the controller 200. The network may also be an Internet Protocol (IP)-based network, such as the World Wide Web; or one of a satellite-based network; a cellular network; a radio frequency (RF) network; a telephone network; a cable television network; a bulletin board system; or any other communication media for transferring data between locations.

The controller 200 may be a computer server, such as a Sun® Solaris® server providing a database server and a web server. The controller 200 may be operated by a product manufacturer, such as a gasoline refiner; by an entity providing customer acquisition services to manufacturers; by an entity providing shopping and retail services to customers; or by any other entity to which the present invention may provide benefits. In the following description, actions of an entity operating the controller 200 will be imputed to the controller 200, such as payment of an amount, reception of payment, etc. Multiple physical devices may be used to perform the functions of controller 200 according to the present invention, and some or all of these functions may also be performed manually.

One or more of the customer devices 100, 101 and 102 may comprise a personal computer, such as those based on the Intel® Pentium® processor; a dedicated terminal; an Internet kiosk; a personal digital assistant; a pager; a cellular phone; a pay phone; a video game; an automated teller machine; a slot machine; a watch; a vending machine; an in-car communications system, such as the NAVSTAR system, for providing data such as global positioning system information, traffic information or the like; or any other device adapted to communicate with the controller 200 over whatever communication media happen to exist between the particular device and the controller 200. For example, in a case that the customer device 100 communicates with the controller 200 over the World Wide Web, the customer device 100 may execute a web browser application for passing data to the controller 200 and/or requesting data from the controller 200. Although three customer devices and three retailer devices are shown in FIG. 1A, any number of customer devices and retailer devices may be in communication with the controller 200 according to the invention.

One or more of the retailer devices 300, 301 and 302 may comprise a personal computer or a network server such as an IBM AS/400 server. In one embodiment, each of the retailer devices 300, 301 and 302 is located at a respective retailer and includes data for its respective retailer. Such data may include inventory data, payroll data, sales data, and any other data used during the operation of a retail establishment. The retailer devices 300, 301

and 302 may also comprise dedicated terminals used primarily to operate in conjunction with a system according to the present invention, or credit/debit card authorization terminals provided with software enabling operation in accordance with the present invention.

In communication with respective ones of the retailer devices 300, 301 and 302 are redemption devices 410, 411 and 421. The redemption devices 401, 411 and 421 may communicate with the retail devices using known media for transporting electrical signals or other communications, and are used to dispense a product to a customer according to the present invention. As described below, each redemption device 401, 411 and 412 may be controlled by a respective retailer device 300, 301 or 302, or by the controller 200.

FIG. 1B is a block diagram of a retail system 20 according to other embodiments of the present invention. Shown in FIG. 1B are the controller 200 and the retailer devices 300, 301 and 302, as described with respect to FIG. 1A. Also shown are customer terminals 400, 410 and 420 in communication with the controller 200. Each of the customer terminals 400, 410 and 420 comprises a redemption device and an offer submission device which, as illustrated by a broken line, may be located in one physical unit or in separate units. The redemption devices 401, 411 and 421 are used to dispense a product to a customer and the offer submission devices 402, 412 and 422 are used by a customer to submit an offer to the controller 200. In one embodiment, the customer terminal 400 is a gasoline pump, the redemption device 401 comprises a pumping mechanism, a hose and nozzle using which gasoline is dispensed, and the offer submission device 402 comprises an input device such as a keypad and a display, such as an LCD, LED, or a flat panel display, using which a customer submits an offer as described below. The offer submission device 402 may also be used to display instructions or advertisements to a customer and to receive payment information, such as a credit card or debit card number, from the customer.

A retailer device may communicate directly with a customer terminal as well as with the controller 200, as shown with respect to the retailer device 300 and the customer terminal 400. As will be described in detail below, this communication enables the retailer device 300 to control the redemption device 401 so as to dispense only as many units of a product as are remaining under an agreement, to receive redemption information directly from the redemption device 401, or for any other purpose. In the following description, transmission of data to a retailer and reception of data from a retailer may be performed using either of a retailer device or a customer terminal.

In another embodiment, a customer communicates directly with a retailer device using a redemption tool, such as a personal digital assistant or a smartcard. In this regard,

communication is established between the redemption tool and the retailer device through an appropriate interface and redemption information is transmitted to the retailer device from the redemption tool. Such an arrangement can be used, for example, in embodiments using a redemption identifier which encodes all the information needed for redemption. As a result, the retailer device and/or an associated customer terminal need not be in communication with the controller 200 before, during, or after redemption.

It should be noted that, in some embodiments, a single unit, such as a gasoline pump, comprises a retailer device, a redemption device and an offer submission device, and that the single unit is in communication with the controller 200. In other embodiments, a retailer device and a customer device as shown in FIG. 1A are housed in a same unit.

Those skilled in the art will understand that devices in communication with each other need not be continually transmitting to each other. On the contrary, such devices need only to transmit to each other as necessary, and may actually refrain from exchanging data most of the time. For example, a device in communication with another device over the World Wide Web may not transmit data to the other for weeks at a time.

DEVICES

Controller

FIG. 2A illustrates an embodiment of the controller 200. The controller 200 may be implemented using a network server, a dedicated hardware circuit, an appropriately-programmed general purpose computer, or any other equivalent electronic, mechanical or electro-mechanical device.

The controller 200 of FIG. 2A comprises a processor 210, such as one or more RISC® processors. The processor 210 is coupled to a communication port 220 through which the controller 200 communicates with other devices, such as the customer devices 100, 101 and 102. As mentioned above, each of the customer devices 100, 101 and 102 may communicate with the controller 200 over different communication media. Accordingly, the communication port 220 is configured, in one embodiment, to communicate using hardware and software protocols of the different media. In addition, the controller 200 can communicate with locally-attached devices through the communication port 220.

Also connected to the processor 210 are an input device 230, a display 240 and a printer 250. The input device 230 may be any device for inputting data, such as a keyboard, a touch screen, a mouse, a voice input device, an infrared port, or the like. The input device

230 can be used by personnel to enter data used by the controller 200 in accordance with the present invention. Data may also be input to the controller 200 using a device connected, either directly or over a communication medium, to the communication port 220.

The display 240 is used to output graphics and text and may be a CRT computer monitor, a flat panel display or another type of display device. Data can also be output by the printer 250 in hard copy format. In one embodiment, such data comprises redemption information, agreement information, and transaction histories.

The processor 210 is also in communication with a data storage device 260. The data storage device 260 is generally a data memory and may include any appropriate combination of magnetic, optical and/or semiconductor memory. The data storage device 260 may also include, for example, Random Access Memory (RAM), Read Only Memory (ROM), a compact disc and/or a hard disk. Furthermore, the processor 210 and the storage device 260 may each be, for example: (i) located entirely within a single computer or other computing device; or (ii) connected to each other by remote communication media such as a serial port cable, telephone line or radio frequency transceiver. In one embodiment, the controller 200 comprises one or more computers that are connected to a remote server computer for maintaining databases.

The data storage device 260 stores a program 500 of processor-executable process steps. The processor 210 executes the process steps of the program 500 and thereby operates in accordance with the present invention, and particularly in accordance with the methods described herein with respect to the controller 200. The program 500 may be stored in a compressed, uncompiled and/or encrypted format. The process steps of the program 500 can be stored in the storage device 260 during manufacture of the storage device 260, can be downloaded from a compact disc or other computer-readable medium, or can be retrieved from a remote or local source through the communication port 220 in the form of a signal having the process steps encoded thereon. The data storage device 260 also stores processor-executable process steps for basic operation of the controller 200, such as process steps of an operating system, a database management system and "device drivers" for allowing the controller 200 to interface with computer peripheral devices. These latter process steps are known to those skilled in the art, and are therefore not described in detail herein.

According to one embodiment of the present invention, the steps of the program 500 are transferred from the data storage device 260 into a main memory, such as a RAM, and executed therefrom by the processor 210. In alternate embodiments, hard-wired circuitry may be used in place of, or in combination with, processor-executable software process steps

for implementation of the processes of the present invention. Thus, embodiments of the present invention are not limited to any specific combination of hardware or software.

The storage device 260 also stores i) a retailer database 600, ii) a retailer restriction database 700, iii) a retailer settlement database 800, iv) a subsidy database 900, v) a redemption condition database 1000, vi) a customer database 1100, vii) an agreement database 1200, and viii) a retailer redemption database 1300. The databases 600 to 1300 are described in detail below and portions thereof are depicted in tabular form with sample entries in the accompanying figures. In this regard, and as will be understood by those skilled in the art, the schematic illustrations and accompanying descriptions of the databases presented herein are merely intended to demonstrate operable systems for associating and storing information. A number of other data structures may be employed besides those suggested by the tables shown. Similarly, the illustrated entries of the databases represent sample information only; those skilled in the art will understand that the number and content of the entries can be different from those illustrated.

FIG. 2B is a block diagram of the controller 200 according to an embodiment of the invention in which an offer is received from a customer by the controller 200 and is routed to participating retailers. The processor 210, the communication port 220, the input device 230, the display 240 and the printer 250 shown in FIG. 2B possess characteristics similar to those described with respect to FIG. 2A.

The storage device 290 includes a program 501 of processor-executable process steps to route an offer to retailers, to establish an agreement with a customer, and to manage a redemption of a product. In this regard, the storage device 290 includes a retailer routing database 601 containing data which is used to identify retailers and to route offers to the retailers. Operation of the embodiment reflected in FIG. 2B will be described below.

Customer Device

FIG. 3 illustrates certain elements of the customer device 100. The customer device 100 is used to input data to and receive data from the controller 200, and to present data to a customer. As shown, the device 100 includes a processor 110 connected to a communication port 120. The communication port 120 is used to transmit data to the controller 200, either via a network or a dedicated connection, and also to receive data from the controller 200. Also connected to the processor 110 is an input device 130 for receiving data from a customer, a display 140 for displaying data to the customer, and a printer 150 for creating a hardcopy of data, such as a redemption voucher for redeeming a product per an agreement

with the controller 200. The input device 130, the display 140 and the printer 150 may comprise any of the input devices, displays, or printers discussed above.

A storage device 160 is also connected to the processor 110, and stores data and processor-executable process steps for the operation of the customer device 100. For example, the storage device 160 stores data and process steps of an operating system 161 which controls basic operation of the customer device 100. Also stored in the storage device 160 are processor-executable process steps of a web browser application 162 which can be executed by the processor 110 to provide communication between the customer device 100 and the controller 200 through the World Wide Web. Of course, depending on the communication media disposed between the customer device 100 and the controller 200, other known applications or hardware may be needed for the customer device 100 to communicate with the controller 200.

Retailer Device

FIG. 4A is a block diagram showing several components of the retailer device 300 according to one embodiment of the invention. According to one version of this embodiment, the retailer device 300 receives a redemption identifier from a customer requesting a redemption, transmits the redemption identifier to the controller 200, and receives authorization from the controller to provide a number of units of a product to the customer. The retailer device 300 then provides, or controls another device such as the redemption device 401 to provide, the product to the customer. After the redemption, the retailer device 300 transmits redemption information to the controller 200.

The retailer device 300 includes a processor 310 for executing processor-executable process steps, and a communication port 320 connected thereto for communicating with the controller 200 over a network or a dedicated connection. The retailer device 300 may communicate with other retailer devices, customer devices or customer terminals over the communication port 320.

Also connected to the processor 310 are an input device 330, a display 340 and a printer 350. The input device 330 can be used by a retailer to input data and instructions into the retailer device 300, such as data for controlling a customer terminal 400 to dispense a certain number of units of a product or redemption information for transmitting to the controller 200. The input device 330 may comprise a keyboard, a voice recognition unit, a touch screen, or other input system. The display 340 displays data to the retailer. For example, the display 340 may display details of a customer agreement with the controller

200, based on which the retailer controls a customer redemption of a product, and may comprise a CRT display, a flat panel display, an LCD display, an LED display or the like. The printer 350 is used to create hardcopies of data received and/or generated by the retailer device 300, and may comprise a laser printer, a thermal printer, an ink jet printer, or the like.

A storage device 360 is connected to the processor 310, and stores processor-executable process steps of a program 361 which are executed by the processor 310 so as to allow the retailer device 300 to operate in accordance with the present invention. The process steps of the program 361 can be stored in the storage device 360 during manufacture of the storage device 360, can be downloaded from a compact disc or other computer-readable medium, or can be retrieved from a remote or local source through the communication port 320 in the form of a signal having the process steps encoded thereon. In one embodiment, the processor-executable process steps of the program 361 are executed by the processor 310 to receive redemption information from a customer, to transmit the redemption information to the controller 200, to receive authorization from the controller 200 to provide a number of units of a product to the customer, to control the redemption device 401 to provide the product to the customer, to receive redemption information from the redemption device 401, and to transmit the redemption information to the controller 200.

FIG. 4B is a block diagram of the retailer device 300 according to another embodiment of the invention. The reader is referred to the description of FIG. 4A for descriptions of the elements of FIG. 4B that are numbered identically to elements of FIG. 4A.

In contrast to the retailer device 300 of FIG. 4B, the data storage device 360 of FIG. 4B contains processor-executable process steps of a program 362 executed by the processor 310 to receive agreement information from the controller 200, to store the agreement information in an agreement database 363 similar to the agreement database 1200, to receive redemption information from a customer, to determine a number of units of a product to provide to the customer based on data in the agreement database 363, to control the redemption device 401 to provide up to the determined number of units of the product to the customer, to receive redemption information from the redemption device 401, to update the agreement database 363 in accordance what the received redemption information, and to transmit the redemption information to the controller 200. Operation of the retailer device 300 according to FIG. 4A and FIG. 4B will be described in more detail below.

Customer Terminal

FIG. 5 is a block diagram of several elements of the customer terminal 400 in accordance with one embodiment of the present invention. As shown in FIG. 5, the customer terminal 400 includes a processor 415 connected to a communication port 425, an input device 430, a display 440 and a printer 450. The communication port 425 is adapted to allow communication between the customer terminal 400, the retailer device 300, and/or the customer device 100, directly or over a network. The input device 430 may consist of a card reader, a keypad, a keyboard, a voice recognition system, or the like, and is used by a customer to input a redemption identifier, establish an agreement with the controller 200, modify an existing agreement or terminate an agreement. The display 440 is used to display instructions and data to the customer, and may be a flat panel display, an LCD display, an LED display, or the like. The printer 450 may be used to provide the customer with a record of a redemption, or with a redemption identifier or voucher for use in subsequent redemptions.

The redemption device 401 of the customer terminal 400 is controlled by the processor 415 to dispense a product. In a case that the product is gasoline, the redemption device 401 includes a pump, hose, nozzle and related electrical, mechanical and hydraulic equipment needed to dispense gasoline to a customer.

Also included in the customer terminal 400 and connected to the processor 415 is a storage device 470 storing processor-executable process steps of a program 471 using which the customer terminal 400 operates in conjunction with embodiments of the invention. The process steps of the program 471 can be stored in the storage device 470 during manufacture of the storage device 470, can be downloaded from a compact disc or other computer-readable medium, or can be retrieved from a remote or local source through the communication port 425 in the form of a signal having the process steps encoded thereon. Generally, and according to one embodiment, the processor 415 executes the processor-executable process steps of the program 471 to receive agreement information from the controller 200, to store the agreement information in the agreement database 472, to receive a redemption identifier from a customer, to locate an agreement corresponding to the received redemption identifier in the agreement database 472, to control the redemption device 401 to dispense a product according to the agreement, to receive redemption information from the redemption device 401, to update the agreement database 472 in accordance with the redemption information, and to transmit the redemption information to the controller 200 via the communication port 425.

In other embodiments, the processor 415 executes processor-executable process steps of the program 471 to receive an offer from a customer to purchase a number of units of an offer product for an offer price and to transmit the offer to the controller 200. According to these embodiments, a customer both establishes an agreement and redeems a product under the agreement at the customer terminal 400.

DATABASES

Retailer Database

FIG. 6 shows a tabular representation of a portion of the retailer database 600 according to an embodiment of the present invention in which the agreement products are types of gasoline and the product retailers are gasoline retailers. As will be described in detail below, the information stored in the retailer database 600 includes retailer-specific data that can be used to determine a specific retailer to bind to an agreement or to determine a settlement price due to a retailer. The database 600 may include any number of records, and includes fields for each record therein. The fields of FIG. 6 specify: i) a retailer identifier 610 used throughout the databases stored in the storage device 260 to identify a particular retailer; ii) a location 620 of the retailer, which may be a full postal address, a ZIP code, GPS coordinates, latitude and longitude, or the like; iii) a manufacturer 630 of a product provided by the retailer; iv) a retail price (87) 640 for which the retailer sells a gallon of 87 octane gasoline; v) a retail price (89) 650 for which the retailer sells a gallon of 89 octane gasoline; and vi) a retail price (92) 660 for which the retailer sells a gallon of 92 octane gasoline.

The retail prices 640 to 660 shown in the tabular representation may be updated automatically at periodic intervals, automatically in real time by receiving retail price data from the retailers corresponding to the retailer identifiers 610, or manually using the input device 230. Of course, records corresponding to retailers in addition to those shown in FIG. 6 may be included in the retailer database 600.

Retailer Restriction Database

FIG. 7 is a tabular representation of a portion of the retailer restriction database 700 according to one embodiment of the invention. The tabular representation shown includes several records, each associated with several fields. The fields specify: i) a retailer identifier 710 which identifies a same retailer as an identical retailer identifier 610 of the retailer database 600; ii) a product 720; iii) a minimum agreement price 730; and iv) a minimum agreement quantity 740. The product 720 identifies a particular product sold by the retailer,

while the minimum agreement price 730 and the minimum agreement quantity 740 are, in one embodiment, restrictions set by the retailer which are used as guidelines by the controller 200 when determining whether to accept a customer offer and when determining a retailer to be bound to an agreement. Usage of the retailer restriction database 700 will be described in more detail below.

Retailer Settlement Database

FIG. 8 illustrates a tabular representation of a portion of the retailer settlement database 800. The tabular representation contains several records, each specifying: i) a retailer identified by a retailer identifier 810; ii) a settlement price 820; iii) a settlement schedule 830; and iv) a commission fee 840. In one embodiment, the retailer identifier 810 refers to a same retailer as an identical retailer identifier 610 or 710 of the databases 600 and 700, and can thereby be used to retrieve data for a particular retailer from any of the databases 600, 700 and 800. The settlement price 820 corresponding to a particular record specifies a price which the controller 200 pays to the retailer corresponding to the record for redemption of a product from the retailer, and the settlement schedule 830 specifies a time at which the corresponding settlement price 820 is paid to the retailer. For example, in one embodiment, a customer establishes an agreement with the controller 200 to purchase 50 gallons of 87 octane gasoline for $1.00 per gallon and pays the central controller $50.00 under the agreement. After the customer has redeemed 10 gallons of 87 octane gasoline from the retailer R-0001, the retailer R-0001 notifies the controller 200 that 10 gallons of 87 octane gasoline have been redeemed by the customer. According to the retailer database 600, the retail price for 87 octane gasoline [retail price (87) 640] offered by the retailer R-0001 is $1.50 per gallon. Accordingly, since the settlement price 820 corresponding to retailer identifier 810 R-0001 is equal to the retail price, the controller 200 pays the retailer R-0001 $1.50 per gallon (10 gallons) = $15.00 at midnight after the redemption, as required by the settlement schedule 830.

The settlement price 820 may be based on the customer's agreement price, the retail price of the product, or the cost of the product to the retailer or the controller 200. The settlement price 820 may be the regular retail price of the product at the time that the agreement is established or at the time that the customer redeems the product, or it could be an average or projected retail price over the redemption time period. The settlement price 820 may also be a percentage, greater than or less than 100%, of the agreement price or the retail price, or the average of the agreement price and the retail price. In addition, the

settlement price 820 may be the same for all customers, or it may be dynamic, changing along with certain customer-related conditions. For example, the controller 200 may pay a lower settlement price for customers who agree to purchase larger quantities of the product. The settlement price may also be based on external factors such as political events, crude oil prices, the stock market, etc.

The commission fee 840 specifies an amount which the corresponding retailer agrees to pay the controller 200 for sales/customers generated by the invention. For example, the retailer may agree to pay the controller 200 a fixed amount for each agreement assigned to the retailer, a fixed amount for a particular number of gallons of a product redeemed by a customer according to an agreement, or any other type of commission. It should be noted that the retailer settlement database 800 may include records corresponding to retailers in addition to those shown in FIG. 8.

Subsidy Database

FIG. 9 is a tabular representation of a portion of the subsidy database 900 according to one embodiment of the invention. Each record in the tabular representation of FIG. 9 includes fields specifying: i) a subsidy identifier 910; ii) a subsidy provider 920; iii) an obligation 930; and iv) a subsidy amount 940. Generally, the subsidy database is used to store information relating to subsidies which are paid to the controller 200 in return for customer acceptance of an obligation 930. As will be described below, such subsidies can be used by the controller 200 to make up a difference between payments received from a customer under an agreement and payments made to retailers under the agreement. Accordingly, the data in the subsidy database 900 is used in one embodiment to determine whether or not to accept a customer offer.

For example, a customer may submit an offer to the controller 200 to purchase 50 gallons of 89 octane gasoline for an agreement price of $1.50. In response, the controller 200 calculates that the customer will pay the controller 200 $1.50 per gallon (50 gallons) = $75.00 if the offer is accepted. The retailer settlement database 800 indicates that the retailer identified by the retailer identifier 800 R-0001 is paid a settlement price equal to a retail price, which, according to the retailer database 600, is $1.70 per gallon for 89 octane gasoline. Accordingly, the controller 200 would be required to pay the retailer identified by the retailer identifier 800 R-0001 ($1.70)(50) = $85.00 if the customer redeems 50 gallons of 89 octane gasoline from the retailer identified by the retailer identifier 800 R-0001. In order to make up for the $85.00 - $75.00 = $10.00 shortfall, the controller 200 analyzes the subsidy

database 900 to locate a subsidy having a corresponding subsidy amount 940 of more than $10.00. The controller 200 thereby locates the subsidy identifier 910 Sub 01 and, per the obligation 930 corresponding to the subsidy identifier 910 Sub 01, determines whether the customer will agree to apply for a gold card. If so, the controller 200 accepts the offer, because the terms would result in a profit of $30.00 - $10.00 = $20.00. Further details of this process and related processes are set forth below.

Redemption Condition Database

A portion of a tabular representation of the redemption condition database 1000 is shown in FIG. 10. Records and fields in addition to those shown may be included in the redemption condition database 1000. Each record in the redemption condition database 1000 includes fields specifying a redemption code 1010 and a redemption condition 1020. The redemption code 1010 is used in other databases stored in the storage device 260 to identify an associated redemption condition 1020. In this regard, the redemption condition 1020 associated with each redemption code 1010 specifies a condition which must be satisfied in order for a customer to redeem a product under an agreement. Accordingly, in some embodiments, a redemption condition 1020 is first evaluated before a customer is authorized to redeem a product under an agreement with the controller 200.

Many types of redemption conditions 1020 can be specified in the redemption condition database 1000. For example, a redemption condition 1020 may specify a particular retailer or retailers which must be visited to redeem an agreement product, or a manufacturer whose retailers must be visited to redeem the product. The redemption condition 1020 may be an expiration date after which the agreement will expire, a maximum or minimum quantity of the agreement product that can be redeemed at one time under the agreement, or a certain time of day/week/month/year during which the product must be redeemed, such as an off-peak time of a retailer. A redemption condition 1020 such as that associated with redemption code 1010 C1 specifies a frequency at which the product must be redeemed or a maximum (minimum) time period which may elapse between redemptions. Other possible redemption conditions 1020 include, but are not limited to, a requirement to make additional purchases at a retailer such as an oil change every three months or a convenience store purchase of over $5.00, a particular car which must be used to receive an agreement product under an agreement, and a maximum retail price of an agreement product during a redemption. The customer may also impose a redemption condition 1020 on an agreement, such as specific times at which certain family members may redeem gasoline under the agreement. The

redemption condition 1020 corresponding to a redemption code 1010 may also specify penalties associated with non-fulfillment of a condition, such as a fee, an increase in an agreement price, or a decrease in a quantity remaining under an agreement.

Customer Database

FIG. 11 is a tabular representation of a portion of the customer database 1100 according to one embodiment of the present invention. The customer database 1100 stores data specific to customers. For example, each record in the customer database 1100 of FIG. 11 includes data specifying: (i) a name 1110; (ii) a customer identifier 1120 associated with the name 1110; (iii) a credit card number 1130 provided by the customer which can be used to extract payment from the customer; (iv) contact information 1140 for contacting the customer, which may include a telephone number, an e-mail address, a postal address, a facsimile number, or other information; (v) a subsidy code 1150 identifying a subsidy offer to which the customer has agreed; and (vi) a bind next offer flag 1160. The bind next offer flag 1160 is used to determine whether a next offer submitted by the customer should be accepted. Setting and usage of the bind next offer flag 1160 will be described below. According to other embodiments, additional data for each record may be stored in the customer database 1100.

Agreement Database

FIG. 12 is a tabular representation of a portion of the agreement database 1200 according to one embodiment of the invention. As shown, each record in the agreement database 1200 includes several fields, specifying: (i) a redemption identifier 1210; (ii) a customer identifier 1220; (iii) a product 1230; (iv) an agreement price 1240; (v) a retailer identifier 1250; (vi) a quantity remaining 1260; and (vii) a redemption code 1270.

The data in the agreement database 1200 is used to store and track the details of an agreement between a customer and the controller 200. For example, the redemption identifier 1210 identifies an agreement, the customer identifier 1220 identifies a customer in the customer database 1100, the product 1230 and the agreement price 1240 specify terms of the agreement, and the retailer identifier 1250 identifies honoring retailers from the retailer database 600. An honoring retailer is a retailer at which a product may be redeemed under a particular agreement. The quantity remaining 1260 is decremented based on redemption of the product 1230 according to the agreement, and the redemption code 1270 can be used in

conjunction with the redemption code 1010 of the redemption condition database 1000 to identify a required redemption condition 1020 prior to authorization of a redemption.

Other fields may also be included in the agreement database 1200. For example, each record may include information specifying a vehicle for which gasoline will be purchased under an agreement, such as a make and model, license plate number, or Vehicle Identification Number (VIN).

Retailer Redemption Database

FIG. 13 is a tabular representation of a portion of the retailer redemption database 1300. The tabular representation shown contains data for three customers who redeemed gasoline at a retailer identified by a retailer identifier 1310 R-0001. Of course, the retailer redemption database 1300 preferably includes data for additional retailers and additional records for additional customers. For each retailer identified by retailer identifier 1310, the retailer redemption database 1300 includes records with several fields, specifying: i) a customer identifier 1320, ii) a product 1330, iii) a quantity redeemed 1340, and iv) a retail price 1350.

More specifically, the customer identifier 1320 identifies a particular customer who redeemed a product from the retailer 1310, the product 1330 identifies the product redeemed, the quantity redeemed 1340 identifies how many units of the product 1330 were redeemed by the customer, and the retail price 1350 identifies a retail price per unit of the product 1330 at the time the product was redeemed. The data of the retailer redemption database 1300 is used, in some embodiments, to determine how many units remain to be redeemed under an agreement, and a settlement amount due to a retailer 1310 after a redemption. The determination of remaining units and the settlement process are described in detail below.

PROCESSES

FIG. 14 is a flow chart of process steps according to one embodiment of the present invention. The process steps may be embodied in hardware, in processor-executable process steps stored on a computer-readable medium and executed by a processor, in processor-executable process steps encoded in an electronic signal received and executed by a processor, or in any combination thereof. The FIG. 14 process steps may be embodied in the customer device 100, the retailer device 300, the customer terminal 400, or in another device. The process steps of the other flow charts described herein may be similarly embodied. In addition, the particular arrangement of steps in the flow chart of FIG. 14, as well as in the

other flow charts described herein, is not meant to imply a necessary order to the steps; embodiments of the present invention can be practiced in many different orders.

The FIG. 14 process steps describe a process to establish an agreement with a customer to provide a number of units of a product for an agreement price, to arrange with a retailer to have a product redeemed at the retailer, and to receive data indicating a redemption of the product. The process steps begin at step 1401, in which an agreement is established with a customer to provide a plurality of units of an agreement product to the customer for an agreement price. Next, in step 1402, redemption authorization information is provided to a retailer based on the agreement.

The redemption authorization information may include a customer identifier, details of an agreement established with a customer, or both. The redemption authorization may also include information needed to decrypt an encoded redemption identifier which may be received from a customer. According to one embodiment of step 1402, redemption authorization information is provided from the controller 200 to the retailer in response to reception of a redemption identifier from the retailer. The redemption authorization information provides details of an agreement between a customer and the controller 200 corresponding to the redemption identifier.

In step 1403, data is received indicating a redemption of the product from the retailer. The data may include details of a product redeemed, a quantity redeemed, a retail price at the time of redemption, and a payment made by the customer. The data may be received after each redemption, after all units under an agreement are redeemed, or at periodic intervals such as daily or weekly. By virtue of the foregoing process steps, a system is provided in which customers' purchasing habits for fractionally-redeemable products can be influenced in a retailer's favor and a retailer is provided with indications of future demand. Moreover, a customer is provided with convenience, protection against price increases, and, in some embodiments may also to pay less than a retail price for a product.

I. Establishment of an Agreement

FIG. 15 is a detailed flow chart of process steps according to one embodiment of step 1401. As such, the process steps generally operate to establish an agreement with a customer to provide a plurality of units of an agreement product for an agreement price. The process steps may be performed by the customer terminal 400, the retailer device 300, the controller 200, another device in communication therewith, or any combination thereof.

Initially, in step 1501, contact is established with a customer. In one embodiment, the contact is established in step 1501 in response to receipt by the controller 200 of a hypertext transfer protocol (HTTP) request for a web page transmitted by the customer device 100 using the web browser 162. Specifically, the contact is established by providing the requested web page to the customer device 100. Accordingly, in this embodiment, the customer device 100 is any web-enabled customer device, such as a telephone, an internet kiosk, a PDA, a web-enabled automobile computer, such as a NAVSTAR system, or the like. Of course, the customer may initially contact the controller 200 using any other of the customer devices described above with respect to FIGS. 1A and 1B, either over a direct connection or over networks other than the web.

The controller 200 may also establish contact with the customer in step 1501 without having first been contacted by the customer device 100. For example, the controller 200 may transmit an advertisement to a kiosk or an ATM machine in communication therewith which is being used by a potential customer. In another embodiment, the customer terminal 400 is used both to provide a product and to establish contact with a customer. In a case that the customer terminal 400 is a gasoline pump, a customer approaching the pump to dispense gasoline may be presented with an invitation on the display 440 to establish an agreement to purchase a plurality of units of gasoline for an agreement price.

After step 1501, it is determined whether the customer is a new customer in step 1502. In one embodiment of step 1502, the customer is required to either indicate that he is a new customer or to input a customer identifier. In the embodiment in which the customer receives a web page from the controller 200, the customer may be questioned in the web page as to whether he has previously established an agreement with the controller 200. If the customer is a new customer, flow proceeds to step 1503, in which customer information, such as a customer name, contact information and payment information are received from the customer. The contact information may include a postal address, a telephone number, an email address or the like, and the payment information may be a credit or debit card number. Although a single customer corresponds to each record shown in FIG. 11, it should be noted that a product may be redeemed under an agreement by more than one particular person, such as by each member of a family.

The information received in step 1503 may be entered by the customer into a web page, and passed from the web browser 162 executing in the customer device 100 to the controller 200 using the Common Gateway Interface (CGI) protocol. In this regard, all data transmitted to the controller 200 from the customer according to the FIG. 15 flow chart and

the other flow charts herein may be transmitted using the CGI protocol or another known protocol for transmitting data between devices.

Next, in step 1504, the customer is assigned a unique customer identifier and, in step 1505, the customer information is stored in association with the assigned customer identifier. In one example of step 1505, a record is created in the customer database 1100 for which the customer name 1110, customer identifier 1120, credit card number 1130 and contact information 1140 fields are populated with the customer name, the assigned customer identifier, contact information and payment information received in step 1503, respectively. Flow then proceeds from step 1505 to step 1506.

Returning to step 1502, flow continues therefrom to step 1507 in a case that the customer is not identified as a new customer. In step 1507, a customer identifier is received from the customer and, in step 1506, an offer is received from the customer to purchase a number of units of an offer product for an offer price. One embodiment of step 1506 is discussed in detail below with respect to FIG. 16.

The offer product may be specified generally or specifically in accordance with the invention. In a case that the offer product is gasoline, the offer product could be, for example, 87 octane gasoline, 89 octane gasoline, or a product having between 85 and 89 octane. The number of units may be specified in any known manner, such as in gallons, tens of gallons, tanks or the like. In one embodiment, the offer also includes preferred retailers or locations at which the customer would like to redeem the offer product.

The offer price may be a specific dollar amount per unit, such as $1.25 per gallon of 87 octane gasoline, $50.00 per tank of gasoline, or $12.50 per forty gallons of gasoline. However, it should be noted that the offer price may not be a specific dollar amount. Rather, the offer price may be presented in terms of a percentage off a retail price (e.g. 15% off the retail price), a monetary amount off the retail price (e.g. $.10 off the retail price per gallon), or a price for a certain retail value ($50 for $60 worth of gasoline). The referenced retail price may be a current retail price or a retail price at a time of redemption.

Rather than receiving an offer price and a quantity in step 1506, the controller 200 may receive from the customer a price per unit and a period of time during which the price is effective, thereby locking in a price for the period of time. Also received from the customer may be a maximum price he is willing to pay or a number of prices, each corresponding to a different agreement product. In another alternative, the controller 200 may receive a before-tax offer price. Accordingly, the controller 200 may adjust the before-tax offer price to an

after-tax offer price prior to step 1508 depending upon the State in which the gas will be redeemed.

In step 1508, it is determined whether the received offer is acceptable. One embodiment of such a determination will be described in detail below with respect to FIG. 18. Generally, however, the determination may be based on the offer price, a quantity of the product desired or a particular automobile to which the agreement will be applicable, if specified by the customer. For example, an offer for an agreement applicable to a minivan may be accepted over an identical offer for a small car with excellent fuel economy. In one embodiment described below, the controller 200 determines whether to accept an offer without regard to subsidies or settlement agreements with particular retailers. For example, the controller 200 may be instructed by the entity operating the controller 200 to accept all offers specifying an offer price of over 80% of an average retail price for gasoline. Accordingly, in a case where an average retail price for 87 octane gasoline is $1.37 per gallon, the controller 200 accepts all offers for 87 octane gasoline equal to or greater than $1.10 per gallon. On the other hand, the controller 200 may base acceptability primarily upon settlement agreements with participating retailers. For example, the controller 200 may have a settlement agreement with a retailer to pay the retailer $1.30 per gallon for 89 octane gasoline. Therefore, the controller 200 accepts all offers for 89 octane gasoline specifying an offer price of equal to or greater than $1.30 per gallon.

Acceptability of an offer may also be based on the existence of third party subsidies. As an example of this embodiment, a case is considered in which a settlement price to be paid to a retailer is $1.45 per gallon for 93 octane gasoline, which also happens to be the current retail price offered by the retailer. An offer is received to purchase 100 gallons of gasoline for $1.25 per gallon. The offer represents a $20 discount off 100 gallons at the retail price. However, a long distance carrier has offered to provide the controller 200 a $30 subsidy for every customer who agrees to switch to the long distance provider. Accordingly, after receiving the offer, the controller 200 asks the customer if he would switch long distance service to the long distance provider. If so, the offer will be accepted, since the $30 subsidy can be used to make up for the $20 discount and the $10 left from the $30 can be used by the controller 200 in any manner. Generally, any type of cross-subsidy offer may be used to "bridge the gap" between the settlement price and the agreement price. Detailed discussions of cross-subsidy systems are described in U.S. Patent Application Serial No. 09/322,351, filed May 28, 1999, for "Method and Apparatus for Providing Cross Benefits and Penalties", the contents of which are incorporated by reference herein for all purposes.

In other embodiments, offer acceptability is based on retailer-specified criteria. For instance, a retailer may have previously indicated to the controller 200 certain parameters on which to base acceptance of an offer from a customer. For example, a retailer may indicate that it will honor offers for more than 50 gallons of 89 gasoline at more than $1.30 per gallon. Accordingly, if a customer submits an offer to purchase 25 gallons of 89 octane gasoline at $1.35 per gallon, the offer is not accepted because it specifies an insufficient amount of gasoline.

Offer acceptability may also be based on criteria provided by a subsidy provider. In this case, a long distance provider offers to subsidize the difference between an offer price and a settlement price if the customer agrees to sign up for a credit card provided by the subsidy provider, and if the offer price is no more than $.10 less than the settlement price. Accordingly, any offer having an offer price no more than $.10 less than a retail price of an offer product is deemed acceptable in step 1508.

In another embodiment, the offer is routed to retailers through the retailer devices 300, 301 and 302 based on information in the retailer database 601 of FIG. 2B. The controller 200 may route the offer to retailers one at a time based on a listed priority until one retailer accepts the offer and the offer thereby becomes an agreement. In another embodiment, the controller 200 routes the offer to several retailers at one time. In a case that more than one of the retailers accepts the offer, the first retailer to accept the offer is awarded the resulting agreement. Alternatively, each accepting retailer is awarded the agreement, in which case the agreement product can be redeemed at each of the accepting retailers for the agreement price. For example, if the customer submits an offer to purchase 50 gallons of 87 octane gasoline and the offer is accepted by three retailers, a first 10 gallons may be redeemed at the first retailer, a next 12 gallons at the second retailer, a next 9 gallons redeemed at the third retailer, and a last 19 gallons redeemed at the second retailer.

In another alternative, the customer may have to choose one retailer of the several accepting retailers at which he will redeem the product. In this case, the controller 200 informs the customer which retailers have accepted the offer and the customer selects one of the retailers. In one embodiment, the customer is charged a fee for an ability to specify more than one retailer. Or, the customer may be informed of which retailers have accepted the offer and, after redeeming the agreement product from one of the retailers, the customer may be required to continue to redeem the agreement product at the one retailer for the remainder of the agreement.

In yet another embodiment, the controller 200 informs each of multiple accepting retailers that more than one retailer has accepted the customer's offer. The controller 200 also allows the retailers to present offers to the customer to influence the customer to select a particular one of the retailers. As an example, two retailers accept a customer's offer to purchase 60 gallons of 87 octane gasoline for $1.30 per gallon. The two retailers are notified that more than one retailer has accepted the offer. A first retailer then offers to provide the customer with 60 gallons of 89 octane gasoline for the agreement price, $1.30 per gallon, and the second retailer offers to provide the customer with 60 gallons of 87 octane gasoline for $1.25 per gallon. The customer then selects one of the two retailers for redemption of the product. Alternatively, the customer may redeem the agreement product at either retailer, while paying retailer-defined agreement prices.

In another embodiment, the controller 200 selects a retailer from whom the customer will redeem the agreement product. The selection may be performed randomly, or in a way to ensure that certain retailers or certain gasoline manufacturers receive a pre-specified percentage of customers. The controller may also select the retailer so as to maximize the profits generated by the controller 200, such as by selecting retailers having a lowest settlement price for a particular agreement. Of course, any combination of the above techniques may be used in step 1508 to determine the acceptability of the received offer.

If the offer is not deemed to be acceptable in step 1508, flow proceeds to step 1509, wherein the customer is asked whether he wishes to submit a new offer. If not, the process steps terminate. If the customer indicates that he wishes to submit a new offer, flow returns to step 1506 for reception of an offer from the customer.

If the offer is deemed to be acceptable in step 1508, the offer becomes an agreement, and the controller 200 transmits an agreement confirmation to the customer in step 1510. The agreement confirmation informs the customer of which offer was accepted, the identity of an honoring retailer or retailers, and required payment. In one embodiment, the agreement confirmation also includes the details of the agreement (number of units, agreement product and agreement price), and instructions for redeeming the agreement product. The agreement confirmation may be transmitted back to the customer device 100 which was used to submit the offer, may be transmitted to the customer by electronic mail, or may be presented to the customer by some other means.

Next, information pertaining to the agreement is stored in the agreement database 1200 in step 1511. In some embodiments, the customer indicates, after step 1508 and prior to step 1511, whether or not he wishes to enter the agreement. According to this embodiment, a

customer may refuse to establish an agreement after the controller 200 has determined that the received offer is acceptable. However, a retailer may be less likely to accept an offer if not guaranteed that the customer will be bound to the offer upon the retailer's acceptance.

Next, in step 1512, the controller 200 collects a payment from the customer corresponding to the agreement. In one embodiment, the customer is charged the price of the agreement using the payment information received in step 1503. The price may be the agreement price, in the case that the agreement specifies 50 gallons of 87 octane gasoline for $60.00, or may be an agreement price multiplied by a number of units specified under the agreement, in the case that the agreement price is $1.25 per gallon for 50 gallons of 89 octane gasoline.

Some agreements according to the present invention expire after a period of time. In a case that a customer pre-pays for such an agreement prior to any redemption under the agreement, the customer may receive a credit for any unredeemed quantity after expiration of the agreement. The credit may be in the form of currency, credit usable to pay for subsequent agreements, credit usable to pay for specific items, or the like. The received credit may be equal to an agreement price per unit multiplied by the unredeemed quantity minus a fee. By providing credit for an unredeemed quantity, this embodiment encourages customers to enter into agreements to purchase a number of units of a product over time.

In other embodiments, the customer pays the price of the agreement in installments before, during and/or after a specified redemption period. Alternatively, the customer pays the retailer each time the product is redeemed. For example, the customer may redeem a number of gallons and then pay the retailer an agreement price per gallon multiplied by the number of gallons redeemed, in which case the controller 200 may pay an additional price to the retailer according to a settlement price established with the retailer. On the other hand, the customer may pay the retailer the full retail price for the redeemed number of gallons and be reimbursed by the controller 200 for any difference between the retail price and the agreement price. Payment may also be received from the customer after the entire quantity under the agreement has been redeemed or after a specified amount of time. Details of various settlement methods according to the invention are set forth below.

After the payment is successfully collected in step 1512, a redemption identifier associated with the agreement is generated and output to the customer in step 1513. The redemption identifier 1210 may be based on information provided by the customer, or it may be generated by the controller 200. For example, the redemption identifier may simply be the credit card number 1130 associated with the customer. The redemption identifier 1210 is

stored in conjunction with other corresponding agreement information in the agreement database 1200 so as to allow identification of separate agreements established with a same customer. The redemption identifier 1210, as will be described in detail below, can be used during redemption to access agreement information corresponding to an agreement or may itself represent encoded agreement information.

FIG. 16 is a flow chart of processor-executable process steps according to one embodiment of step 1506 of FIG. 15. The process steps may be executed by the controller 200, the retailer device 300, the customer terminal 400, and a device in communication therewith, alone or in combination.

The process steps begin at step 1601, in which product information is received from the customer. In one embodiment, the information is input by the customer, using the input device 140 of the customer device 100, into a web page transmitted to the customer device 100 by the controller 200. The input information is then transmitted back to a web server of the controller 200 using the CGI protocol or another protocol for transmitting data from a web client to a web server. Of course, the information may be input using the input device 430 of the customer terminal 400. The information received in step 1601 specifies an offer product, such as Exxon® 87 octane gasoline, 87 octane gasoline, or 86 to 89 octane gasoline.

After the product information is received, information specifying a desired quantity of the offer product is received in step 1602. The desired quantity information may be input by the customer using any of the methods described above with respect to step 1601. In one embodiment, the desired quantity information received in step 1602 indicates a desired number of tankfuls of a particular gasoline product, with an amount of a tankful being defined depending upon a tank size of an automobile specified by the customer. For example, in a case that the information received in step 1602 indicates that two tankfuls of gasoline are desired, the desired quantity is understood to be 50 gallons in a case that the customer is establishing an agreement for a sport utility vehicle, or 20 gallons in a case that the customer is establishing an agreement for a compact car. A tankful may be defined depending upon a customer's historical average redemption amount or the like.

Next, in step 1603, retailers are selected based on the information received in steps 1601 and 1602. In one embodiment, a postal address or ZIP code of the customer is used to identify participating retailers located nearby the customer. The postal address or ZIP code may be input by the customer or determined after reception of a customer identifier using a database such as the customer database 1100. Of the identified retailers, those retailers

providing the offer product are selected in step 1603. Then, in step 1604, a retail price of the offer product is determined for each of the selected retailers. The retail price may be determined in step 1604 by reference to the retailer database 600 of the controller 200.

After determination of the retail prices, a plurality of proposed offer prices are determined based on the determined retail prices in step 1605. In one embodiment, the plurality of proposed offer prices are determined by determining an average price of the determined retail prices and by subtracting pre-specified amounts from the average price. For example, in a case where retailer R-0001 and R-0002 are selected in step 1603, and the offer product is 89 octane gasoline, corresponding retail prices (89) 650 of $1.70 per gallon and $.1.64 per gallon are retrieved from the retailer database 600. The retail prices are averaged, resulting in an average retail price of $1.67 per gallon. Next, subtracted from the average retail price are the pre-specified amounts 5 cents, 10 cents, 12 cents and 15 cents, to produce proposed offer prices of $1.62 per gallon, $1.57 per gallon, $1.55 per gallon, and $1.52 per gallon.

In step 1606, an associated acceptance probability is determined for each of the plurality of proposed offer prices. An associated acceptance probability corresponds to a probability that an associated offer price will be deemed acceptable in step 1508. In one embodiment, an acceptance probability is associated with a pre-specified amount less than an average retail price. In this regard, the pre-specified amounts 5 cents, 10 cents, 12 cents and 15 cents may be associated with acceptance probabilities of 98%, 96%, 90% and 80%, respectively. As a result, associated acceptance probabilities of 98%, 96%, 90% and 80% are determined for the proposed offer prices $1.62, $1.57, $1.55 and $1.52, respectively, in step 1606.

In another embodiment, an associated acceptance probability associated with each of the plurality of the proposed offer prices varies depending upon a customer's previous behavior. FIG. 17 illustrates tables 1700 and 1750, in which associated acceptance probabilities vary depending on a customer's previous behavior. For example, the table 1700 illustrates that the acceptance probabilities 98%, 96%, 90% and 80% are appropriate in a case that the controller 200 has previously accepted one offer from the customer. The table 1750, on the other hand, illustrates that the associated acceptance probability for each proposed offer price is 100% if a customer has not yet had an offer accepted by the controller 200. The data in the table 1750 is used to ensure that the customer will use the system at least once, thereby encouraging future uses of the system.

In another example, the associated acceptance probabilities determined for a second offer may be greater than those determined for a first offer in a case that the second offer price is greater than the first offer price, in order to encourage such offers. Conversely, associated acceptance probabilities may be decreased in a case that a customer continually enters low offer prices, in order to discourage such offers.

The plurality of proposed offer prices and associated acceptance probabilities are transmitted to the customer in step 1607. In one embodiment, each of the proposed offer prices is displayed on the display 140 of the customer device 100 in association with an associated acceptance probability in a manner selectable by the customer. Accordingly, a selected offer price is received from the customer in step 1608. It should be noted that the selected offer price according to the FIG. 16 embodiment may be one of the plurality of proposed offer prices or another offer price input by the customer.

FIG. 18 is a flow chart of process steps according to one embodiment of step 1508. Accordingly, the FIG. 18 process steps are used to determine whether the offer received in step 1506 is acceptable. The process steps may be performed by the customer terminal 400, the retailer device 300, the controller 200, another device in communication therewith, or any combination thereof.

Initially, in step 1801, it is determined whether the offer meets pre-qualification requirements. For example, the offer may be examined to determine whether the offer price is too low to be seriously considered. Immediate rejection of such low offers is desirable because it discourages subsequent submissions of such offers. An offer price may be considered too low if it is, for example, more than 20 cents less per gallon than an average retail price per gallon of the offer product.

An offer may also fail to meet pre-qualification requirements in step 1801 if it is identical to a prior offer given by a same customer within a previous period of time, such as one day. This requirement is intended to discourage a customer from discovering a lowest acceptable price by slowly increasing an offer price until an offer is accepted. Accordingly, an offer may be deemed identical to a previously-rejected offer in step 1801 without regard to an offer price. For example, the offer may be deemed identical to a previous offer it if it is submitted by an identical customer for a substantially identical product and for substantially identical retailers. It may also be determined in step 1801 whether the payment identifier submitted by the customer in step 1511 is fraudulent, such as a cancelled credit card number or a credit card number previously found to be unusable by the controller 200. Of course, other pre-qualification requirements can be evaluated in step 1801, such as whether the

customer submitting the offer already has a certain number of offers outstanding or whether the customer is identified as a fraud risk by a third party fraud identification service.

If it is determined in step 1801 that the pre-qualification requirements are not met, flow proceeds to step 1509 and continues as described above. If the requirements are met, it is determined whether or not to bind the offer in step 1802. In one embodiment, it is determined in step 1802 to bind the offer if the customer has accepted a subsidy offer in conjunction with the submission of the offer. In addition, the controller 200 determines to bind the offer in step 1802 if a bind next offer flag 1160 corresponding to the customer is set to "yes".

Acceptance probability tables such as those shown in FIG. 17 and discussed above with respect to FIG. 16 may also be used to determine whether to bind the received offer in step 1802. For example, in a case that the received offer price was associated with an acceptance probability in step 1606, that acceptance probability can be used in step 1802 to determine, according to an algorithm incorporating the probability, whether or not to bind the offer. In one embodiment, the algorithm may return a "maybe", as described in commonly assigned co-pending Application Serial No. (WebHouse Tokens). As described in detail therein, the customer, upon receiving a "maybe", is provided with an ability to change the "maybe" to a "yes" by raising the offer price, by agreeing to a promotion which results in a subsidy payment to the controller 200, or by using tokens or other credits previously provided by the controller 200 or a third party.

In a case that no such acceptance probability has been associated with the received offer prior to step 1802, an acceptance probability can be determined based on the offer price using tables such as the tables 1700 and 1750. In this regard, different tables of acceptance probabilities may be applicable to different customer segments, such as platinum, gold, silver, and head of household tables, each having progressively decreasing probabilities. A customer score may be used to decide to which customer segment a particular customer is assigned. An equation for calculating a customer's score, according to one embodiment, is "customer score = X(number of retailers) + Y(total number of accepted gas offers/average price level) + Z(number of promotions accepted)", wherein X, Y and Z are weighting factors which can be adjusted to alter the respective effects of each term on the final customer score. In one embodiment, each segment is assigned a particular range of customer scores, and a customer is assigned to a segment based on the range in which his customer score falls.

Accordingly, a customer may receive benefits based on purchasing history. Other than receiving better probabilities of acceptance, a frequent customer or a customer referring others may receive full service instead of self-service gasoline, an octane upgrade, etc.

If the controller 200 determines in step 1802 not to bind the offer, flow continues to step 1509. If the controller 200 determines to bind the offer, the offer becomes an agreement, and flow proceeds to step 1803 to determine the retailer or retailers who will be bound to honor the agreement.

In one embodiment of step 1803, a manufacturer providing the agreement product is identified using a market share database. FIG. 19A illustrates a tabular representation of a portion of the market share database 1900 according to one embodiment of the invention. As shown in FIG. 19A, associated with each manufacturer 1910 is a percentage target market share 1920, a percentage actual market share 1930 and a percentage difference 1940. The percentage target market share 1920 specifies a percentage of all bound customers that it is desired to have redeem gasoline at a retailer selling gasoline produced by the associated manufacturer 1910. The percentage target market share 1920 in based on an agreement between each manufacturer 1910 and the controller 200. For example, the controller 200 may require a manufacturer to pay $1,000 per month for each percent of target market share allotted to the manufacturer. Therefore, in order to guarantee a 25% market share, a manufacturer 1910 pays $25,000 per month to the controller 200.

The percentage actual market share 1930 is a statistic determined by the controller 200 based on an actual percentage of all bound customers that redeem gasoline at the associated manufacturer 1910, and the percentage difference 1940 is obtained by subtracting the percentage target market share 1920 from the percentage actual market share 1930 of the manufacturer 1910. In the example shown in FIG. 19A, the manufacturer "Exxon" is selected in step 1803 because the associated percentage difference 1940 is less than any other percentage difference in the database 1900.

Next, a retailer associated with the manufacturer 1910 is selected. FIG. 19B illustrates a tabular representation of a portion of a price tier database 1950 used in one embodiment of step 1803. In the representation shown, retailer identifiers 1960 and associated tiers 1970 are stored for a particular manufacturer and a particular product, such as Exxon and 89 octane gasoline. In one embodiment, the retailer identifiers 1960 refer to the same retailer as the retailer identifiers discussed above with respect to the databases of the storage device 260. The tier 1970 corresponding to a retailer identifier 1960 can be determined in many ways.

In one embodiment, a standard distribution of retail prices is created for each product (e.g. 89 octane gasoline) of the manufacturer (e.g. Exxon), and those retailers selling the product for a retail price less than the average retail price minus one standard deviation are assigned to the "low" tier 1970, those retailers selling the product for a retail price within one standard deviation of the average retail price are assigned to the "medium" price tier 1970, and those retailers selling the product for a retail price greater than the average retail price plus one standard deviation are assigned to the "high" price tier 1970.

After selection of a manufacturer 1910 from FIG. 19A, a portion of the price tier database 1950 corresponding to the manufacturer 1910 and the offer product is accessed to identify retailers having a lowest price tier 1970. In the example of FIG. 19B, retailers R-0001, R-0004 and R-0010 are selected. Next, one of the three retailers is selected as the honoring retailer according to an algorithm providing an equal probability that each of the three retailers will be selected. After selection of the honoring retailer, flow continues to step 1510 as described above.

Of course, any of the methods described above with respect to step 1508 may be used to determine whether to bind an offer and to determine an honoring retailer or retailers.

II. Product Redemption

FIG. 20 is a flow chart illustrating processor-executable process steps according to one aspect of the present invention. It should be noted that several or all of the process steps of FIG. 20 may be performed by the controller 200, the retailer device 300, the customer terminal 400, or by another system in communication therewith, such as a system maintained by a product manufacturer.

The FIG. 20 process steps begin at step 2001, in which a redemption request is received from a customer along with a redemption identifier. The redemption request includes a desired quantity of a particular product, so as to allow the retailer to determine whether to authorize the requested redemption.

In one embodiment, the redemption request and the redemption identifier are presented by the customer at the customer terminal 400, such as a gasoline pump. In this regard, the redemption identifier may be encoded in a magnetic strip on a credit card or a debit card, and the customer may submit the redemption identifier by swiping the card through a card reader in the input device 430 of the offer submission device 402.

The redemption identifier may also be in the form of a bar code which is transmitted from the controller 200 to the customer in step 1510 and then printed out in hardcopy form

using the printer 150, the printer 450, or the printer 350, depending upon the device from which the offer was received in step 1508. In this case, the input device 430 includes a bar code reader which reads the bar code to retrieve the redemption identifier. In another alternative, a signal encoding the redemption identifier is emitted by a transponder similar to the one used in the Mobil® Speedpass® program and received by a suitable receiver in the input device 430, which extracts the redemption identifier therefrom. Of course, the redemption identifier may also be an alphanumeric code which the customer inputs using a keypad of the input device 430.

In another embodiment, the customer places a telephone call to the controller 200 before a redemption and receives a redemption identifier which is then input to the customer terminal 400 to enable the redemption device 401. The call may also be placed to the offer submission device 402. After redemption, the customer terminal 400 outputs a second code to the customer which encodes a quantity redeemed, a product redeemed, etc. The customer then places another call to the controller 200 and inputs the second code, using which the controller 200 updates a record corresponding to the redemption. The customer may be penalized for not placing the second call by being charged a fee or by being charged a retail price for the quantity redeemed.

In yet another embodiment, the customer terminal 400 displays a telephone number for the controller 200, which the customer dials to begin a redemption. The controller 200 recognizes the customer by the number of telephone used by the customer or by a Personal Identification Number input by the customer, and retrieves appropriate agreement information based thereon.

Rather than presenting a redemption identifier at the customer terminal 400, the redemption identifier may be presented to a cashier at the retailer using a magnetic strip, bar code, alphanumeric code, or the like. The cashier then uses a card reader, bar code reader, or keypad in the input device 330 of the retailer device 300 to input the redemption identifier. It should be noted that either the retailer device 300 or the customer terminal 400 may transmit the redemption identifier and the redemption request to the controller 200. Accordingly, the redemption request and the redemption identifier may be received in step 2001 by at least the customer terminal 400, the retailer device 300 and the controller 200.

Agreement information associated with the received redemption identifier is retrieved in step 2002. In this regard, the offer submission device 402 may store agreement information in a database similar to the agreement database 1200, and may therefore use a

received redemption identifier to retrieve associated agreement information from the database. Alternatively, the retailer device 300 may store agreement information received from the controller 200 in the agreement database 363 and, regardless of whether the offer was submitted to the cashier or to the offer submission device 402, the retailer device 300 retrieves the associated agreement information stored therein in step 2002. In another embodiment, the redemption identifier received in step 2001 encodes the agreement information and the agreement information is retrieved therefrom in step 2002.

In yet another embodiment, the retailer stores a list of valid redemption identifiers in the retailer device 300, the customer terminal 400, or in a central retailer database (e.g. a central Exxon database with which all Exxon retailers are in communication). If the redemption identifier received in step 2001 corresponds to a listed redemption identifier, the retailer transmits the redemption identifier to the controller 200. In response, the controller 200 retrieves agreement information corresponding to the received redemption identifier from the agreement database 1200. Alternatively, the redemption identifier and the redemption request are transmitted from the retailer device 300 or the customer terminal 400 to the controller 200, and the controller 200 retrieves associated agreement information from the agreement database 1200 in step 2002. It should be noted that all locally-stored retailer data described herein may be stored in the retailer device 300, the customer terminal 400, and/or a central retailer database, and that all transmissions to and from a retailer may be transmitted to and from the retailer device 300, the customer terminal 400, and/or a central retailer database.

In step 2003, the requested redemption is authorized. In one embodiment, the controller 200 analyzes the retrieved agreement information to determine whether to authorize the redemption and transmits a signal authorizing the retailer to provide the requested redemption. In other embodiments, the retailer device 300 or the customer terminal 400 compares the redemption request with the retrieved agreement information to determine whether to authorize the redemption. Embodiments of step 2003 will be described in more detail below with respect to FIG. 21.

Next, in step 2004, the redemption is managed to ensure compliance with the agreement. In one embodiment of step 2004, the customer terminal 400 controls the redemption device 401 to set a price for the agreement product equal to the agreement price. According to this embodiment, the customer pays the agreement price to the retailer and the controller 200 reimburses the retailer for any difference between the agreement price and a settlement price established between the controller 200 and the retailer. The customer

terminal 400 may also control the redemption device 401 to ensure that an amount redeemed does not exceed a quantity remaining under the agreement. In this regard, the customer terminal 400 may control the redemption device 401 to provide a pre-specified amount in addition to the quantity remaining. If the customer redeems the pre-specified additional amount, the amount may be priced at the agreement price, the settlement price, or the retail price.

In other embodiments of step 2004, the customer terminal 400 displays an agreement price and a quantity remaining under the agreement to the customer, and the customer is responsible for redeeming an appropriate amount. If the customer redeems more than the quantity remaining, the customer may be charged the retail price or the agreement price for the additional amount. The customer may also be charged a penalty, such as a flat fee or a price greater than the retail price for the additional amount. More specific methods for managing the redemption according to step 2004 will be described below.

Finally, in step 2005, the agreement information is updated based on the redemption. If the retailer stores agreement information locally in the agreement database 363 of the retailer device 300 or the customer terminal 400, the locally-stored agreement information is updated. In a case that the controller 200 keeps an updated record of the agreement in the agreement database 1200, the retailer transmits redemption information to the controller 200 which allows the controller 200 to perform such an update, such as an indication of redeemed product, the quantity redeemed, a retail price of the redeemed product, and/or a quantity remaining under the agreement. In one embodiment, the controller 200 also communicates with the retailer devices 301 and 302 and/or the customer terminals 410 and 420 to update corresponding agreement information which is locally stored in the retailer devices 301 and 302 and/or the customer terminals 410 and 420. The latter embodiment ensures that each retailer honoring an agreement has updated agreement information stored locally. Specific embodiments for updating the agreement information in step 2005 will be discussed below.

FIG. 21 is a flow chart of processor-executable process steps to determine whether to authorize a requested redemption according to one embodiment of step 2003. The process steps may be performed by the retailer device 300, the customer terminal 400, the controller 200, a device in communication therewith, or by any combination thereof.

Initially, in step 2101, it is determined whether the redemption identifier received in step 2001 is valid at the retailer receiving the redemption identifier. In a case that step 2101 is performed by the controller 200, the agreement database 1200 is checked to see if the retailer is identified by a retailer identifier 1250 corresponding to the received redemption

identifier 1210. In a case that step 2101 is performed by a retailer storing agreement information for agreements which can be redeemed at the retailer, it is determined whether the stored information includes agreement information corresponding to the received redemption identifier. If the agreement corresponding to the received redemption identifier is not redeemable at the retailer, flow proceeds to step 2102 in which data is transmitted indicating that the redemption is unauthorized. Thereafter, a customer may be presented with a "redemption unauthorized" message or a similar message by the display 440 of the customer terminal 400, and/or directed to the retailer or retailers identified by the retailer identifier 1250 at which the agreement corresponding to the received redemption identifier 1210 can be redeemed.

If the received redemption identifier is determined to be valid at the retailer, it is determined in step 2103 whether a quantity remaining under the agreement is greater than a quantity specified in the redemption request received in step 2001. The determination in step 2103 may be accomplished by referring to the quantity remaining 1260 corresponding to the received redemption identifier 1210 in the agreement database 1200 or by reference to corresponding agreement information stored locally at the retailer. For example, in a case that the customer requests 30 gallons of 92 octane gasoline from retailer R-0003, it is determined in step 2103 that the redemption cannot be authorized because a corresponding quantity remaining 1260 in the agreement database 1200 is 25 gallons. Accordingly, flow proceeds to step 2102. Alternatively, the customer may be invited to resubmit the request with a reduced quantity. However, if the quantity remaining 1260 under the agreement is greater than the requested quantity, flow continues to step 2104.

In step 2104, it is determined whether any redemption conditions associated with the agreement are satisfied. For example, the agreement identified in the agreement database 1200 by the redemption identifier 1210 RED 0024 is associated with the redemption code 1270 "C2". Therefore, if the redemption identifier 1210 RED 0024 is received in step 2001, it is determined in one embodiment of step 2104 whether the current day is a weekday and the current time is between 2:00 p.m. and 4:00 p.m., as required by the condition 1020 corresponding to the redemption code 1010 C2.

If the condition associated with the received redemption identifier is not satisfied, flow returns to step 2102 to indicate to the customer that the redemption is unauthorized. If the condition is satisfied, data is transmitted in step 2105 indicating that the redemption is authorized. The data may be transmitted from the retailer device 300 to the redemption device 401, from the controller 200 directly to the redemption device 401, from the controller

200 to the retailer device 300, or from the offer submission device 402 to the redemption device 401. An indication that the redemption is authorized may or may not be transmitted to the customer in step 2105.

FIG. 22 is a flow chart of processor-executable process steps according to one embodiment of step 2004. In this regard, after a redemption has been authorized in step 2003, the redemption device 401 is set to dispense the agreement product in step 2201. In the case of the agreement identified by the redemption identifier 1210 RED 0024, the redemption device 401 is set to dispense 87 octane gasoline in step 2201. It should be noted that step 2201, as well as the other process steps of FIG. 22, may be performed by the retailer device 300, the offer submission device 402, or the controller 200, or another device in communication with the redemption device 401.

Next, in step 2202, the redemption device 401 is set to stop dispensing the agreement product when the quantity redeemed is equal to the quantity remaining under the agreement. Again considering the redemption identifier 1210 RED 0024, the redemption device 401 is set in step 2202 to stop once three gallons of gasoline have been redeemed. In another embodiment, the redemption device 401 is set in step 2202 to stop dispensing the product once the total price of the product redeemed reaches a total retail price of the quantity remaining 1260 corresponding to the agreement. After step 2202, the customer controls the redemption device 401 so as to redeem the agreement product. Once the customer has redeemed a desired quantity, which may be less than the amount set in step 2202, the quantity redeemed is received in step 2203.

In one embodiment of step 2203, the quantity redeemed is received by the retailer device 300 and is then transmitted to the controller 200. The quantity redeemed is used, in step 2204, to update the agreement information in the agreement database 1200 and in any local databases used by the retailer. For example, in a case that the customer redeems two gallons under the agreement RED 0024, an indication thereof is transmitted to the controller 200 and the associated quantity remaining 1260 is changed to one gallon

FIGS. 23A and 23B illustrate a flow chart of processor-executable process steps of a specific embodiment of the FIG. 20 process steps. The process steps relate to an embodiment in which a customer has prepaid for an entire agreement quantity prior to redemption of an agreement product.

The process steps begin at step 2301, in which a redemption identifier and a product selection are received from a customer. For example, the product selection may be received in step 2301 by the customer terminal 400 or the retailer device 300 after the customer

presses a button located on the offer submission device 402 labeled "87 octane". Next, in step 2302, it is determined whether the selected product is a qualifying agreement product corresponding to the received redemption identifier. The determination in step 2302 can be made by the retailer device 300 or the customer terminal 400 if the agreement information is stored locally. The determination can also be made by the controller 200 with reference to the agreement database 1200. For example, in a case that the received redemption identifier is RED 0024, the controller 200 determines in step 2302 whether the selected product is 87 octane gasoline, since the agreement product 1230 under the agreement identified by RED 0024 is 87 octane gasoline.

If the selected product is not a qualifying agreement product, flow continues to step 2303, wherein the redemption device 401 is disabled and a message is presented to the customer such as "Please select the correct product", along with an indication of the agreement product. In one example of step 2303, the offer submission device 402 displays the message to the customer.

If the selected product is a qualifying agreement product, the customer is not prevented from redeeming the selected product. Accordingly, after the customer begins redeeming the product using the redemption device 401, real-time information regarding the quantity of the product redeemed is received in step 2304. Next, in step 2305, it is determined whether the redeemed quantity is equal to the quantity remaining under the agreement. The determination in step 2305 can be made with reference to agreement information stored in the retailer device 300, the customer terminal 400, or in the quantity remaining field 1260 of the agreement database 1200.

If the redeemed quantity is not equal to the quantity remaining, flow continues to step 2306. It is determined in step 2306 whether the redemption of the product by the customer is complete. A redemption may be deemed complete upon detection of a return of a dispensing nozzle of the redemption device 401 to its storage space or based on an indication from the customer using the offer submission device 402. If the redemption is not deemed complete, flow returns to step 2304 for reception of additional real-time information.

Accordingly, flow continues through steps 2304, 2305 and 2306 until the redemption is complete or until the quantity redeemed is equal to the quantity which was remaining under the agreement prior to the current redemption, whichever occurs first. If the redemption is completed first (the determination in step 2306 is "yes"), the agreement information associated with the redemption is updated in step 2307. For example, if the quantity

redeemed during the redemption is two gallons, the quantity remaining 1260 corresponding to the redemption identifier 1210 RED 0024 is updated from three gallons to one gallon.

If the redeemed quantity is equal to the quantity remaining under the agreement, flow proceeds from step 2305 to step 2308. The redemption device 401 is disabled in step 2308 so that an additional quantity of the agreement product cannot be redeemed therefrom. As a result, after step 2308, the quantity so far redeemed is equal to the quantity which was remaining under the agreement prior to the redemption. Next, in step 2309, it is determined whether the customer would like to receive an additional quantity of the agreement product. In one embodiment of step 2309, the retailer device 300 transmits a message displayed by the offer submission device 402 such as "Continue pumping 87 octane?", and awaits customer selection of a "Yes" or "No" button on the offer submission device 402. Of course, in a case that the FIG. 23A process steps are executed by the offer submission device 402, the offer submission device 402 generates the message and awaits the customer selection in step 2309. If the customer does not request an additional quantity of the product, flow proceeds to step 2307 as described above.

If the customer requests an additional quantity, it is determined in step 2310 whether the customer requests an extension of the agreement under which the redemption was provided. For example, the customer is asked in step 2310 whether he would like to add an additional quantity of the agreement product to the agreement. If so, the desired additional quantity is received from the customer and the customer is charged the agreement price for the additional quantity in step 2311. In one example, a customer redeeming a product under the agreement identified by the redemption identifier 1210 RED 0024 requests an extension of the agreement in step 2310, transmits a desired quantity such as 20 gallons, and is charged the agreement price ($1.45 per gallon)(20 gallons) = $29.00 in step 2311. The $29.00 is charged to the corresponding customer using a corresponding credit card number 1130 accessed using the customer identifier 1120 and the customer database 1100. In step 2312, the desired additional quantity is added to the quantity remaining 1260 corresponding to the subject agreement. Flow then returns to step 2304 as described above.

It should be noted that the customer may also add an additional desired quantity to an agreement prior to or after a redemption under the agreement. In this regard, the customer may receive a message at the customer terminal 400 encouraging the customer to add an additional quantity to an agreement. The message may specify a bonus, such as $10 off an oil change, which will be awarded to the customer in return for adding 50 gallons to an existing product agreement.

If the customer does not request an extension of the agreement in step 2310, a form of payment is received in step 2313. For example, the customer may submit a credit card number to the offer submission device 402 in step 2313. The submitted credit card number may be the same as or different from the credit card number using which the customer was originally charged for the agreement. Any other acceptable form of payment may also be received from the customer in step 2313. After the form of payment is received, the redemption device 401 is enabled in step 2314.

Flow pauses at step 2314 until it is determined in step 2315 that the customer redemption is complete. Thereafter, in step 2316, the customer is charged, using the form of payment received in step 2313, the retail price for the difference between the quantity remaining 1260 under the agreement prior to the redemption and the total quantity redeemed during the redemption. For example, if the quantity remaining 1260 under the agreement prior to the redemption was three gallons and the total quantity of gasoline dispensed during the redemption was ten gallons, the customer is charged the retail price per gallon multiplied by seven gallons. Finally, in step 2317, the agreement information corresponding to the agreement is updated by setting the associated quantity remaining 1260 to zero gallons.

In another embodiment, the customer is charged in step 2316 a short time after the redemption, in order to give the customer the opportunity to establish a subsequent agreement. If another agreement is established, the customer is not charged in step 2316 for the additional quantity redeemed. Rather, the additional quantity is deducted from the quantity specified in the subsequent agreement.

In another embodiment, if a customer redeems a number of gallons in addition to those than available under an agreement, the customer is charged the agreement price for a specified number of the additional gallons, and is charged the retail price for any remaining gallons. For example, in a case that a customer

FIGS. 24A and 24B illustrate a flow chart of processor-executable process steps to redeem a product under an agreement in accordance with another embodiment of the present invention. Generally, the process steps can be used to control the redemption device 401 by tracking a retail price of an amount of gasoline redeemed from the redemption device 401. The process steps may be executed by the offer submission device 402, the controller 200, the retailer device 300, a device in communication therewith, or by any combination thereof.

Steps 2401 to 2403 proceed similarly to steps 2301 to 2303 of FIG. 23A, and descriptions thereof are omitted for the sake of brevity. In this regard, flow proceeds to step 2404 if it is determined in step 2402 that the selected product received in step 2401 is a

qualifying product under the agreement, which is identified using the redemption identifier also received in step 2401.

The total retail price of the quantity remaining 1260 under the agreement is calculated in step 2404. In one embodiment, a current retail price of the selected product is initially identified in step 2404 using the retailer database 600. For example, in a case that the retailer at which the redemption is to occur is the retailer corresponding to the retailer identifier 610 R-0002 and the selected product is 87 octane gasoline, a retail price of $1.50 per gallon is identified according to the data shown in FIG. 6. Next, the quantity remaining 1260 under the agreement is identified using the agreement database 1200. For the agreement corresponding to the redemption identifier 1210 RED 0024, the quantity remaining 1260 is three gallons. Accordingly, the total retail price of the quantity remaining 1260 under the agreement is calculated as ($1.50 per gallon)(3 gallons) = $4.50.

Next, as the customer redeems the selected product, a total retail price of a redeemed quantity is received in step 2405. In one embodiment of step 2405, the offer submission device 402 monitors the total retail price of the quantity redeemed using the redemption device 401. It is then determined in step 2406 whether the total retail price of the quantity redeemed is less than the total retail price calculated in step 2404. If so, it is determined in step 2407 whether the redemption is complete, and, if the redemption is not complete, flow returns to step 2405. As a result, the process steps cycle through steps 2405, 2406, and 2407 during redemption of the product until either the redemption is complete or until the total retail price of the quantity redeemed equals the total retail price of the quantity remaining under the agreement prior to the redemption.

If it is determined in step 2407 that the redemption is complete, the quantity redeemed is determined by dividing the total retail price of the quantity redeemed by the unit retail price for the product in step 2410. In one example, the total retail price of a quantity of 87 octane gasoline redeemed at the retailer corresponding to the retailer identifier R-0002 under the agreement identified by the redemption identifier 1210 RED 0024 is $3.00. According to the retailer database 600, the retail price (87) 640 at the retailer identified by the retailer identifier 610 R-0002 is $1.50 per gallon. Therefore, in step 2410, the quantity redeemed is determined to be ($3.00)/($1.50) = two gallons.

The agreement information corresponding to the redemption is updated in step 2411. Using the foregoing example, the agreement quantity 1260 corresponding to the redemption identifier 1210 RED-0024 is decremented by two gallons, to reflect one gallon remaining under the agreement.

Returning to step 2406, if it is determined that the total retail price of the quantity redeemed equals the total retail price of the quantity remaining under the agreement, the redemption device 401 is disabled in step 2408. Next, in step 2409, it is determined whether the customer requests an additional quantity of the agreement product. If not, the quantity redeemed is determined by dividing the total retail price of the quantity redeemed by the unit retail price for the product in step 2410. For example, at step 2410, the total retail price of a quantity of 87 octane gasoline redeemed at the retailer identified by the retailer identifier 610 R-0002 under the agreement identified by the redemption identifier 1210 RED 0024 is $4.50. Again, the retail price (87) 640 for the product at the retailer identified by the retailer identifier 610 R-0002 is $1.50 per gallon. Therefore, in step 2410, the quantity redeemed is determined to be ($4.50)/($1.50) = three gallons.

The agreement information corresponding to the redemption is updated in step 2411. Using the foregoing example, the agreement quantity 1260 corresponding to the redemption identifier 1210 RED-0024 is decremented by three gallons, to reflect zero gallons remaining under the agreement.

Returning to step 2409, flow proceeds therefrom to step 2412 in a case that the customer requests an additional quantity in step 2409. In step 2412, it is determined whether the customer requests an extension of the agreement on which the current redemption is based. As described with respect to step 2310 of FIG. 23B, the offer submission device 402 may present the customer with an inquiry regarding extension of the agreement, which may be answered by the customer by pressing "Yes" or "No" on a keypad of the offer submission device 402.

If the customer requests an extension of the product agreement, a desired additional quantity of the product is received and the customer is charged the agreement price for the additional quantity in step 2413, as described with respect to step 2311. Next, in step 2414, the additional quantity is added to the quantity remaining 1260 corresponding to the subject agreement as described with respect to step 2312. The process steps then proceed from step 2414 to step 2404 and continue as described above.

If the customer does not request an extension of the agreement in step 2412, a form of payment is received in step 2416. The form of payment may be any payment acceptable to the retailer, including the credit card number 1130 associated with the customer in the customer database 1100. The redemption device 401 is then enabled in step 2417 and flow cycles through step 2418 until it is determined that the redemption is complete.

In one embodiment, it is determined in step 2418 that the redemption is complete upon detecting that the customer has returned a nozzle of the redemption device 401 to its storage area in the redemption device 401. After step 2418, the customer is charged for a difference between the total retail price for the quantity remaining under the agreement as calculated in step 2404 and the total retail price of the entire quantity redeemed. In one example, data is received from the customer terminal 400 in step 2419 indicating that $11.90 worth of gasoline was redeemed during the redemption. Since the total retail price of the quantity remaining 1260 under the agreement prior to the redemption was $4.50, the difference charged to the customer in step 2419 is $7.40. The amount is charged to the customer using the form of payment received in step 2416.

Lastly, in step 2420, agreement information corresponding to the subject agreement is updated. In one embodiment, the agreement information is updated by setting the associated quantity remaining 1260 in the agreement database 1200 to zero. The agreement information may be updated in step 2420 each night by sending redemption information from the customer terminal 400 or the retailer device 300 to the controller 200, may be updated immediately in local databases stored in the customer terminal 400 or the retailer device 300, or may be updated in other manners. For example, information indicating the redemption of a particular quantity of a product is transmitted to the controller 200 from the retailer from whom the product was redeemed. The controller 200 updates the agreement database 1200 in accordance with the received information and transmits information indicating the quantity redeemed to other honoring retailers from which the customer may redeem the product under the agreement. According to this example, the other honoring retailers can update their own locally-stored information corresponding to the agreement.

FIGS. 25A and 25B illustrate a flow chart of processor-executable process steps for performing steps 2003, 2004 and 2005 of FIG. 20 according to one embodiment of the present invention. Generally, the FIG. 25A and FIG. 25B process steps are used in an embodiment in which agreement information is encoded in a redemption identifier provided to the customer. The FIG. 25 process steps may be performed by the customer terminal 400, the retailer device 300, the controller 200, another device in communication therewith, or by any combination thereof.

The process steps begin at step 2501, in which a redemption identifier is received from the customer. According to the FIG. 25A and FIG. 25B process steps, the redemption identifier received in step 2501 encodes agreement information corresponding to an agreement established between the customer and the controller 200. As described above, the

redemption identifier may be encoded using known methods for encoding information, such as an encryption algorithm having a corresponding decryption algorithm. The redemption identifier is provided to the customer after an agreement is established with the controller 200 and may be embedded in a smart card, a bar code, an electronic signal transmitted by a transponder, an analog or digital signal transmitted by a PDA, or any other means for conveying data. Of course, the offer submission device 402 provides an appropriate interface to receive the redemption identifier depending upon the type of redemption identifier provided to the customer by the controller 200.

The redemption identifier is decoded to retrieve agreement information in step 2502. In one embodiment, the redemption identifier encodes all agreement information needed to authorize and manage a redemption and to update agreement information after the redemption. For example, the redemption identifier may be decoded using a decryption algorithm corresponding to the encryption algorithm used to encode the redemption identifier to produce agreement information such as that shown in the FIG. 12 representation of the agreement database 1200. It should be noted that the redemption identifier is decoded in step 2502 using a method corresponding to whatever method was used to encode the redemption identifier.

In step 2503, it is determined whether redemption conditions are associated with the agreement based on the retrieved agreement information. If so, it is determined in step 2504 whether the associated conditions are satisfied by the current redemption. For example, in a case that the agreement information retrieved in step 2502 indicates that the product can be redeemed only between 2:00 p.m. and 4:00 p.m. on weekdays, flow proceeds from step 2503 to step 2504, in which it is determined whether the current date and time satisfies the condition. If not, the customer is informed in step 2505 that the redemption is invalid. For example, the offer submission device 402 may display a message such as "Redemption conditions not satisfied, redemption invalid."

If it is determined that all conditions associated with the received agreement information are satisfied, the customer is informed that the redemption is valid in step 2506. Step 2506 may be performed by displaying a message on the display 440 of the offer submission device 402 such as "Begin pumping". It should be noted that if no redemption conditions are associated with the agreement, flow proceeds from step 2503 directly to step 2506.

After step 2506, the redemption device 401 is set to dispense the agreement product in step 2507. The identity of the agreement product is determined from the agreement

information retrieved in step 2502. In a case that the FIG. 25A and FIG. 25B process steps are embodied in the offer submission device 402 and the agreement product retrieved in step 2502 is 87 octane gasoline, the offer submission device 402 sets the redemption device 401 to dispense 87 octane gasoline in step 2507. Next, in step 2508, the retrieved agreement information is analyzed to determine a quantity remaining under the agreement.

The quantity remaining which is determined in step 2508 is equivalent to the quantity remaining 1260 shown in the agreement database 1200. For example, in a case that the retrieved agreement information indicates that eight gallons of 87 octane gasoline remain to be redeemed under the agreement, eight gallons are determined to be the quantity remaining in step 2508. Accordingly, in step 2509, the redemption device 401 is set to stop dispensing gasoline once the redeemed quantity is equal to the quantity remaining determined in step 2508. In the present example, the redemption device 401 is set to stop dispensing gasoline after eight gallons have been dispensed. Thereafter, in step 2510, an indication is received that the redemption device 401 has stopped dispensing the product. It should be understood that, in view of step 2509, the indication is received in step 2510 if the quantity remaining under the agreement has been redeemed, if the customer has manually stopped the redemption device 401 prior to redeeming the quantity remaining under the agreement, or if the redemption device 401 automatically stopped after detecting a full gas tank using a nozzle sensor.

In step 2511, data is received indicating the quantity of the product redeemed. As described above, the received data may indicate that the quantity remaining under the agreement was redeemed, or that a lesser quantity was redeemed. Next, in step 2512, the quantity redeemed is subtracted from the quantity remaining under the agreement prior to the redemption. For example, if the quantity remaining under the agreement prior to the redemption was three gallons and two gallons were redeemed, the difference obtained in the step 2512 is one gallon. If the difference is determined to be zero in step 2513, the FIG. 25A and FIG. 25B process steps terminate, since a difference of zero indicates that the customer redeemed the entire quantity remaining under the agreement prior to the redemption.

If the difference is not equal to zero, the quantity remaining under the agreement is set equal to the difference in step 2514. Using the previous example, the quantity remaining is set in step 2514 to equal (three gallons) - (two gallons) = one gallon. Next, in step 2515, the new quantity remaining and other agreement information is encoded into a new redemption identifier using an encryption algorithm. The other agreement information encoded into the new redemption identifier is, in one embodiment, the information retrieved in step 2502, with

the exception of the information specifying the quantity remaining, which is updated with the new quantity remaining. Finally, the new redemption identifier is output to the customer in step 2516, so as to allow the customer to redeem up to the new quantity remaining under the agreement in a subsequent redemption.

The FIG. 25A and FIG. 25B process steps advantageously allow fractional redemption of a product under an agreement without referring to information stored in a database local to a retailer or stored in a controller 200. That is, all of the agreement information needed to authorize and manage the redemption and to update the agreement information is provided in the redemption identifier itself.

III. Settlement

FIG. 26 is a flow chart of processor-executable process steps for settlement of accounts between the controller 200 and a retailer in accordance with one embodiment of the present invention. According to one embodiment, the process steps are executed by the controller 200 and/or by a device in communication therewith.

A redemption record is received from a retailer in step 2601. The redemption record may be received from the retailer device 300, the customer terminal 400, or another device in communication therewith. The redemption record, in one embodiment, includes a customer identifier and data indicating a quantity redeemed. The redemption record may also include an identifier identifying the product redeemed, a retail price for the product at the time of redemption, a date and time of the redemption, and any other information associated with the redemption. Another way of determining a retail price of a product at a time of redemption is to receive the date and time of redemption and to determine the retail price at the date and time from retailer records.

Next, in step 2602, a settlement price corresponding to the retailer is retrieved. In one embodiment, the settlement price is determined using the retailer settlement database 800. Specifically, a retailer identifier 810 corresponding to the retailer from which the redemption record was received is used to retrieve a settlement price 820 associated with the retailer. Next, in step 2603, a settlement due to the retailer is determined based on the received quantity redeemed and the retrieved settlement price.

As an example of one embodiment of the FIG. 26 process steps, it is assumed that a redemption record received in step 2601 indicates that three gallons of 89 octane gasoline were redeemed by a customer at the retailer identified by the retailer identifier 610 R-0001. The record also indicates that, at the time of the redemption, the retail price of 89 octane

gasoline at the retailer was $1.70 per gallon. According to the retailer settlement database 800, the settlement price 820 corresponding to the retailer identified by the retailer identifier 610 R-0001 is the retail price at the time of redemption. Therefore, the settlement determined in step 2603 is equal to the number of gallons redeemed multiplied by the retail price (three gallons)($1.70 per gallon) = $5.10. In the present example, it is assumed that the customer pays for the entire agreement at the time the agreement is established. Of course, the determination in step 2603 will vary based on whether the customer pays the entire price for the agreement prior to redemption, pays the retailer the agreement price for a quantity redeemed after each redemption, or pays the retailer the retail price of a quantity redeemed after each redemption. In the latter case, the controller 200 pays to the customer the difference between the retail price for the quantity redeemed and the agreement price for the quantity redeemed, and no settlement amount is paid to the retailer.

FIGS. 27A and 27B illustrate a flow chart of processor-executable process steps according to one embodiment of the FIG. 26 process steps. More specifically, the FIG. 27A and FIG. 27B process steps relate to a system in which the controller 200 settles accounts with a retailer once per day. The process steps may be executed by the controller 200 and/or by a device in communication therewith.

The settlement process of FIG. 27A and FIG. 27B is for use with an embodiment in which a customer pays for a total price of an agreement prior to redemption and does not pay any amount to a retailer from whom a product is redeemed. For example, the settlement process of FIG. 27A and FIG. 27B is used for an agreement in which a customer pays $50.00 for fifty gallons of 87 octane gasoline at $1.00 per gallon, and does not make any payment to a retailer before or after redeeming gasoline from the retailer. Accordingly, the process steps of FIG. 27A and FIG. 27B are used to insure payment to a retailer of a settlement price agreed upon between the retailer and the controller 200.

The process steps begin at step 2701, in which redemption information is received from a retailer. According to the embodiment of the FIG. 27A and FIG. 27B process steps, the redemption information is received from the retailer device 300 after redemption of a quantity of gasoline from the retailer. Of course, according to other embodiments, the redemption information is received at specified intervals throughout a day, or from other sources, such as the customer terminal 400. The redemption information received in step 2701 includes a customer identifier, a product redeemed, a quantity redeemed, and a retail price for the redeemed product at the time of redemption. Next, in step 2702, retailer information corresponding to the received redemption information is updated.

To explain step 2702, FIG. 13 shows the retailer redemption database 1300 for the retailer identified by the retailer identifier 1310 R-0001. In a case that information is received in step 2701 indicating that the customer associated with the customer identifier 1320 CUST 888 redeemed 15 gallons of 87 octane gasoline from the retailer, the information is stored as a customer identifier 1320, a product 1330, and a quantity redeemed 1340 corresponding to one record. In a case that a retail price for 87 octane gasoline at the time of redemption was also received in step 2701, the retail price is stored as an associated retail price 1350. In another embodiment, the retailer redemption database 1300 does not include separate records for each customer identifier 1320. Rather, stored in the retailer redemption database 1300 are only the product 1330, the quantity redeemed 1340, and the retail price 1350 at the time of redemption.

After step 2702, it is determined in step 2703 whether the current time is midnight. If not, it is determined in step 2704 whether another redemption has taken place at the retailer. If not, flow returns to step 2703. Accordingly, flow cycles between steps 2703 and 2704 until either the current time reaches midnight or another redemption takes place at the retailer. In a case that another redemption takes place at the retailer before the current time reaches midnight, flow returns to step 2701 to receive redemption information for the another redemption.

The determination in step 2703 is related to a pre-established settlement schedule 830 between the controller 200 and a particular retailer. For example, if the settlement schedule 830 calls for settlement with the retailer after each redemption, flow proceeds directly from step 2702 to step 2705. Accordingly, steps 2703 and 2704 can be altered to comport with a particular settlement schedule 830.

Returning to the flow chart, flow proceeds from step 2703 to step 2705 once the current time reaches midnight. At this point, redemption information has been collected from the retailer for a 24 hour interval from midnight of the previous day to midnight of the present day. In step 2705, retailer redemption information for a first customer is retrieved. For example, retailer redemption information for a first customer may be retrieved from the retailer redemption database 1300. With regard to FIG. 13, retailer redemption information for the customer corresponding to the customer identifier 1320 CUST 888 is retrieved in step 2705. Next, in step 2706, the quantity redeemed by the customer from the retailer and the corresponding retail price at the time of the redemption is determined from the received redemption information. In the present example, the quantity redeemed is fifteen gallons and the corresponding retail price is $1.50 per gallon.

The settlement amount due to the retailer is determined in step 2707. In one embodiment, the settlement amount due to the retailer is determined from the retailer settlement database 800. As shown in FIG. 8, the settlement price 820 corresponding to the retailer identified by the retailer identifier 810 R-0001 is the retail price. Accordingly, and since the retail price 1350 is $1.50 per gallon, the settlement amount is determined in step 2707 to be (fifteen gallons)($1.50 per gallon) = $22.50. The determined settlement amount is added to the total settlement due to the retailer in step 2708. In the present example, the total settlement after 2708 is equal to $22.50.

If it is determined in step 2709 that redemption information for additional customers was received, flow returns to step 2705 to calculate the settlement amount due to the retailer for each of the additional customers. Once the settlement amount for each additional customer is determined and added to the total settlement in step 2708, flow continues to step 2710, wherein the retailer is paid the total settlement. In the example shown in FIG. 13, the total settlement corresponding to the three customers shown is $22.50 + $33.00 + $13.13 = $68.63.

After step 2710, the retailer redemption information is initialized in step 2711. In other words, the data in the retailer redemption database 1300 is cleared because the retailer redemption received for the past 24 hours is not relevant to future calculations of settlement amounts.

It should be noted that other methods for computing the settlement amount may be used in the FIG. 27A and FIG. 27B process steps. For example, in a case that the settlement price 820 established with a retailer is the agreement price, and the agreement price is a price per gallon, the settlement amount corresponding to a customer is equal to an agreement price per gallon established with the customer multiplied by the number of gallons redeemed at the retailer by the customer. It should also be noted that redemption information may be received from a retailer without any customer-identifying information. That is, a retailer may simply transmit information indicating a number of gallons of various products redeemed under various customer agreements with the controller 200. Accordingly, the controller 200 then determines the settlement amount due to the retailer based on this information and other information stored in the databases of the controller 200.

ADDITIONAL EMBODIMENTS

The following are several examples which illustrate additional embodiments of the present invention. These examples do not constitute a definition of all possible embodiments,

and those skilled in the art will understand that the present invention is applicable to many other embodiments. Further, although the following examples are briefly described for clarity, those skilled in the art will understand how to make any changes, if necessary, to the above-described embodiments to accommodate these and other embodiments and applications.

In one embodiment, the controller 200 may establish an agreement with a travel association such as AAA® to sell gasoline to association members. For example, upon receiving notification from a member that the member will be taking a particular automobile trip, AAA® offers a special deal to the customer where he may prepay for a number of units of gasoline which can be redeemed at certain participating retailers along the way. The member may be eligible for special agreement prices or a special customer segment, and retailers may pay to participate.

In another embodiment, an agreement price decreases during redemption under an agreement. For example, a customer may pay $1.30 per gallon for a first 10 gallons under an agreement, $1.20 for a next 10 gallons, and so on. Accordingly, this scheme rewards a customer for completing an agreement.

An agreement may also specify "fillups" rather than specific amounts of gasoline. In this regard, an agreement may specify a flat price, price per unit, or a percentage off a retail price for each fillup. If a customer who has agreed to 10 fillups at $1.25 per gallon redeems 5.5 gallons during a redemption, the customer pays $6.88 and is left with 9 more fillups, at which any amount may be redeemed.

The customer may be prohibited from redeeming a product different from an agreement product. Alternatively, a customer having redeemed a product different from an agreement product may be allowed to redeem the product but then charged a full retail price for the product, perhaps with a penalty, after the controller 200 receives an indication of the redemption.

The agreement may specify different quantities of different products for a same agreement price. For example, the agreement price may be $50 for 60 gallons of 87 octane gasoline, 50 gallons of 89 octane, or 40 gallons of 93 octane. The particular agreement product would be the first product redeemed under the agreement, or the customer may be able to redeem any of the specified products during the life of the agreement. In the latter instance, the agreement price may correspond to a certain number of agreement points and a unit of each product would be worth a different number of points.

The customer may also be required to purchase a number of units of the agreement product at a retail price when redeeming the product under the agreement. For example, a customer redeeming 10 gallons of an agreement product may have to pay the retail price for 5 gallons and the agreement price for the remaining 5 gallons.

In order to determine a retailer or retailers to bind to an agreement, the controller 200 may bundle several agreements and auction the bundle to participating retailers. The offers may be bundled according to one or more characteristics, such as time submitted, agreement product, or agreement price. A retailer may offer payments to the controller 200 in exchange for a bundle of customers. In addition, a retailer may be required to honor all offers in a bundle, or may choose which agreements from the bundle will be honored.

In other embodiments, settlement prices and/or agreement prices may vary depending upon when a redemption occurs. For example, an agreement price may be lower if redemption occurs during a weekday rather than a weekend.

As described above, a customer may be provided with a code to present prior to a redemption. The code may be stored in a database in conjunction with a "valid" status flag. Once the code is presented for a redemption, the status flag is changed to "invalid" and a new code is provided to the customer. The new code is also stored in the database in conjunction with a status flag changed from "invalid" to "valid". For embodiments in which benefits increase during redemption under an agreement, each code can be associated with a different benefit. For example, a first code provided to the customer before any redemption under an agreement may be associated with a $1.50 per gallon agreement price, while a fourth code provided may be associated with a $1.25 per gallon agreement price.

One or more honoring retailers may be associated with different agreement prices. In this regard, a customer may pay $1.25 per gallon of gasoline redeemed under an agreement from a first retailer and $1.30 per gallon of gasoline redeemed under the agreement from a second retailer. The agreement may specify a total desired quantity or may specify separate quantities for each retailer. In one embodiment, a customer redeems the agreement product from each honoring retailer using a same redemption identifier.

In another embodiment, a redemption identifier corresponding to an agreement can be used to redeem gasoline from a retailer at which the agreement is not honored. For example, if the redemption identifier is embodied in a credit card, the retail price for a product redeemed at the non-honoring retailer will be deducted from an appropriate account tracked by the controller 200 without affecting corresponding agreement information. Alternatively, the agreement information may be updated by subtracting the amount redeemed from the

quantity remaining under the agreement. The agreement information may also be updated by subtracting a number of gallons from the quantity remaining which could have been redeemed at the agreement price for the retail price deducted from the customer's account. For example, if an agreement price is $1.25 and 10 gallons of gasoline were redeemed from a non-honoring retailer at $1.50 per gallon, ($15/$1.25) = 12 gallons of gasoline are deducted from the quantity remaining under the agreement.

The redemption identifier may also be embodied in a smart card, in which case the smart card can store and process information other than that directly related to the product agreement, such as a customer's purchase history. For example, the smart card could track what offers were received by the customer and which of the offers were accepted. Retailers could use this information to tailor offers to the customer.

One redemption identifier could relate to redemption of several products. For example, a customer may use a single redemption identifier to redeem gasoline, oil, and wiper fluid, as long as the several products are each somehow associated with the redemption identifier.

A redemption identifier may also be given to a third party as a gift, allowing the third party to redeem an agreement product associated with the redemption identifier. In this embodiment, the agreement price may be kept secret from the third party. For example, the customer terminal 400 displays a retail price during redemption rather than an agreement price.

In other embodiments, a customer is permitted to make ad hoc changes to an agreement. For example, if the price of gasoline drops from $2.00 per gallon to $1.00 per gallon and an agreement has been established for an agreement price of $1.75 per gallon, the customer may renegotiate a new agreement price for the quantity remaining under the agreement, or a new agreement price may be automatically generated. Such an embodiment discourages agreement breakage and may encourage customers to establish agreements with the controller 200. On the other hand, an agreement may be void or unusable if retail prices reach a pre-specified level. For example, an agreement may specify that it is usable only if a retail price for the agreement product is less than $3.00 per gallon.

In another embodiment, the customer pays the agreement price only if the agreement price is less than a retail price for the agreement product. For example, an agreement price is compared to a current retail price when a customer submits a redemption identifier for a redemption. If the retail price is greater than the agreement price, the redemption proceeds according to an embodiment described herein. If the agreement price is greater than the retail

price, and both prices are prices per unit, the customer is refunded a difference between the agreement price and the retail price multiplied by the number of units redeemed. If the customer has not pre-paid for the agreement, the customer pays the retailer the retail price.

In some embodiments, all retailers are considered honoring retailers. That is, a customer may redeem the agreement product at any gasoline station and the controller 200 will charge the customer the agreement price for the agreement product. According to these embodiments, the customer is provided with a credit card that is used to pay for an agreement product at any retailer. The controller 200 is notified of the credit card transaction and i) charges the customer the agreement price for the product, and ii) pays the retailer the retail price or a settlement price for the redeemed product.

While the present invention has been described above with respect to several embodiments, the scope of the invention is not deemed limited to the above embodiments. Rather, the present invention covers all embodiments falling within the scope and spirit of the following claims as well as equivalent arrangements thereof.

What is claimed is:

1. A method comprising:

establishing an agreement with a customer to provide X units of a product for an agreement price;

arranging with a retailer to have the product redeemed at the retailer; and

receiving data indicating a redemption of Y units of the product,

wherein Y is a non-integer.

2. A method according to Claim 1, wherein the agreement price is less than a current retail price offered by the retailer for the product.

3. A method according to Claim 1, further comprising:

receiving from the customer an offer to purchase the product for the agreement price; and

indicating an acceptance of the offer.

4. A method according to Claim 3, further comprising:

determining whether to indicate the acceptance based on a difference between the agreement price and a settlement price to be paid to the retailer.

5. A method according to Claim 1, further comprising:

determining a difference between the agreement price and a settlement price to be paid to the retailer; and

identifying a subsidy offer greater than the difference.

6. A method according to Claim 1, further comprising:

receiving from the customer a payment equal to the agreement price.

7. A method according to Claim 6, wherein the payment is received in a plurality of installments.

8. A method according to Claim 6, wherein the payment is received after the X units of the product are redeemed.

9. A method according to Claim 1, further comprising:

paying the retailer a settlement amount after receiving the data indicating the redemption.

10. A method according to Claim 9, wherein the agreement price is a price per unit of the product, and the settlement amount is equal to Y multiplied by (a current retail price per unit of the product minus the agreement price).

11. A method according to Claim 10, further comprising receiving from the customer a payment equal to X multiplied by the agreement price.

12. A method according to Claim 10, wherein the agreement price is a price per unit of the product, and the settlement amount is equal to Y multiplied by (a predetermined price per unit of the product minus the agreement price).

13. A method according to Claim 12, further comprising receiving from the customer a payment equal to X multiplied by the agreement price.

14. A method according to Claim 1, further comprising:

paying the customer an amount paid by the customer to the retailer minus (the agreement price multiplied by Y),

wherein the agreement price is a price per unit of the product.

15. A method according to Claim 1, further comprising:

transmitting to the retailer the agreement to provide X units of the product for the agreement price.

16. A method according to Claim 1., further comprising:

receiving from the retailer a request for authorization to provide the product to the customer.

17. A method according to Claim 16, further comprising:

retrieving agreement information corresponding to the agreement; and

transmitting an authorization to the retailer to provide the product to the customer.

18. A method according to Claim 1, further comprising:
updating data indicating a quantity remaining under the agreement based on the received data.

19. A method to provide a product to a customer, comprising:
receiving a redemption identifier;
retrieving data indicating an agreement to provide X units of a product for a customer-specified agreement price based on the redemption identifier;
authorizing a redemption of up to X units of the product; and
receiving data indicating a redemption of Y units of the product,
wherein Y is a non-integer.

20. A method to provide a product to a customer, comprising:
receiving a redemption identifier from a customer;
transmitting the redemption identifier to a controller;
receiving authorization from the controller to provide up to X units of a product to the customer;
controlling a redemption device to stop dispensing the product after X units of the product have been dispensed; and
determining whether the customer requests additional units of the product.

21. A method to provide a product to a customer, comprising:
controlling a redemption device to stop dispensing a product after X units of the product have been dispensed;
establishing an agreement with a customer to redeem additional units of the product for an agreement price;
storing information corresponding to the agreement; and
providing the additional units to the customer.

22. A method to provide a product to a customer, comprising:
receiving a redemption identifier from a customer;
retrieving data indicating an agreement to provide X units of a product for a customer-specified agreement price based on the redemption identifier; and

providing Y units of the product to the customer,

wherein Y is a non-integer.

23. A method according to Claim 22, further comprising receiving the data indicating an agreement to provide X units of a product for a customer-specified agreement price from a controller.

24. A method according to Claim 22, further comprising determining a quantity remaining under the agreement.

25. A method according to Claim 24, further comprising transmitting the determined quantity remaining to the customer.

26. A method according to Claim 24, further comprising:

controlling a product redemption device to stop dispensing the product once the quantity remaining has been redeemed.

27. A method according to Claim 26, further comprising receiving an offer to purchase Z units of the product for the customer-specified agreement price once the quantity remaining has been redeemed.

28. A method according to Claim 26, further comprising receiving an offer to purchase X units of the product for a second customer-specified agreement price once the quantity remaining has been redeemed.

29. A method according to Claim 26, further comprising receiving an offer to purchase Z units of the product for a second customer-specified agreement price once the quantity remaining has been redeemed.

30. A method according to Claim 26, further comprising receiving an offer to purchase X units of the product for the customer-specified agreement price once the quantity remaining has been redeemed.

31. A method according to Claim 22, further comprising:

determining that an amount of the product redeemed by the customer exceeds a quantity remaining under the agreement.

32. A method according to Claim 31, further comprising:

calculating a difference between the amount of the product redeemed and the quantity remaining under the agreement; and

extracting a payment from the customer equal to the difference multiplied by a retail price for the product.

33. A method according to Claim 31, further comprising:

calculating a difference between the amount of the product redeemed and the quantity remaining under the agreement; and

extracting a payment from the customer equal to (the agreement price multiplied by the quantity remaining under the agreement) plus (the difference multiplied by a retail price for the product).

34. A method according to Claim 31, further comprising:

calculating a difference between the amount of the product redeemed and the quantity remaining under the agreement; and

extracting a payment from the customer equal to (the agreement price multiplied by the quantity remaining under the agreement) plus (the difference multiplied by a retail price for the product) plus a penalty.

35. A method according to Claim 31, further comprising:

calculating a difference between the amount of the product redeemed and the quantity remaining under the agreement; and

if the difference is less than a predetermined amount, extracting a payment from the customer equal to the agreement price multiplied by the difference.

36. A method according to Claim 31, further comprising:

calculating a difference between the amount of the product redeemed and the quantity remaining under the agreement; and

if the difference is less than a predetermined amount, extracting a payment from the customer equal to the agreement price multiplied by the quantity redeemed.

37. A method according to Claim 22, further comprising transmitting data indicating the redemption of Y units to a controller.

38. A method according to Claim 22, further comprising receiving a payment from the customer, the payment based on a current retail price offered by the retailer per unit of the product multiplied by Y.

39. A method according to Claim 22, wherein the agreement price is a price per unit, the method further comprising receiving a payment from the customer based on the agreement price multiplied by Y.

40. A method according to Claim 39, further comprising receiving a payment from a third party, the payment based on Y multiplied by (a settlement price per unit established with the third party minus the agreement price) .

41. A method according to Claim 22, further comprising receiving a payment from a third party, the payment based on a settlement price per unit established with the third party multiplied by Y.

42. A method according to Claim 22, further comprising transmitting data indicating a received payment and the Y redeemed units to a third party.

43. A method according to Claim 22, further comprising controlling a redemption device to provide the product to the customer for the agreement price.

44. A method according to Claim 22, further comprising updating the data indicating the agreement based on the redemption.

45. A method according to Claim 44, further comprising:
generating a second redemption identifier encoding the updated data; and
outputting the second redemption identifier to the customer.

46. Computer-executable process steps stored on a computer-readable medium, the process steps comprising:

an establishing step to establish an agreement with a customer to provide X units of a product for an agreement price;

an arranging step to arrange with a retailer to have the product redeemed at the retailer; and

a receiving step to receive data indicating a redemption of Y units of the product, wherein Y is a non-integer.

47. Computer-executable process steps stored on a computer-readable medium, the process steps comprising:

a receiving step to receive a redemption identifier;

a retrieving step to retrieve data indicating an agreement to provide X units of a product for a customer-specified agreement price based on the redemption identifier;

an authorizing step to authorize a redemption of up to X units of the product; and

a receiving step to receive data indicating a redemption of Y units of the product, wherein Y is a non-integer.

48. Computer-executable process steps stored on a computer-readable medium, the process steps comprising:

a receiving step to receive a redemption identifier from a customer;

a transmitting step to transmit the redemption identifier to a controller;

a receiving step to receive authorization from the controller to provide up to X units of a product to the customer;

a controlling step to control a redemption device to stop dispensing the product after X units of the product have been dispensed; and

a determining step to determine whether the customer requests additional units of the product.

49. Computer-executable process steps stored on a computer-readable medium, the process steps comprising:

a controlling step to control a redemption device to stop dispensing a product after X units of the product have been dispensed;

an establishing step to establish an agreement with a customer to redeem additional units of the product for an agreement price;

a storing step to store information corresponding to the agreement; and

a providing step to provide the additional units to the customer.

50. Computer-executable process steps stored on a computer-readable medium, the process step comprising:

a receiving step to receive a redemption identifier from a customer;

a retrieving step to retrieve data indicating an agreement to provide X units of a product for a customer-specified agreement price based on the redemption identifier; and

a providing step to provide Y units of the product to the customer,

wherein Y is a non-integer.

51. An apparatus comprising:

means for creating an agreement with a customer to provide X units of a product for an agreement price;

means for planning with a retailer to have the product redeemed at the retailer; and

means for receiving data indicating a redemption of Y units of the product, wherein Y is a non-integer.

52. An apparatus for providing a product to a customer, comprising:

means for obtaining a redemption identifier;

means for obtaining data indicating an agreement to provide X units of a product for a customer-specified agreement price based on the redemption identifier;

means for allowing a redemption of up to X units of the product; and

means for obtaining data indicating a redemption of Y units of the product, wherein Y is a non-integer.

53. An apparatus for providing a product to a customer, comprising:

means for obtaining a redemption identifier from a customer;

means for delivering the redemption identifier to a controller;

means for obtaining authorization from the controller to provide up to X units of a product to the customer;

means for managing a redemption device to stop dispensing the product after X units of the product have been dispensed; and

means for identifying whether the customer requests additional units of the product.

54. An apparatus for providing a product to a customer, comprising:

means for managing a redemption device to stop dispensing a product after X units of the product have been dispensed;

means for creating an agreement with a customer to redeem additional units of the product for an agreement price;

means for saving information corresponding to the agreement; and

means for delivering the additional units to the customer.

55. An apparatus for providing a product to a customer, comprising:

means for obtaining a redemption identifier from a customer;

means for obtaining data indicating an agreement to provide X units of a product for a customer-specified agreement price based on the redemption identifier; and

means for delivering Y units of the product to the customer, wherein Y is a non-integer.

56. A method for redeeming a product, comprising:

receiving an offer to purchase a number of units of an offer product for an offer price;

indicating an acceptance of the offer;

transmitting a redemption identifier associated with the offer;

receiving the redemption identifier and data indicating a desired product;

determining if the desired product is equivalent to the offer product;

authorizing a redemption of the number of units of the product if the desired product is equivalent to the offer product; and

receiving data indicating a redemption of a fractional number of units of the product, the fractional number less than the number of units.

57. An apparatus comprising:

a processor; and

a memory in communication with the processor, the memory storing processor-executable process steps,

wherein the processor is operative with the process steps to:

i) receive an offer to purchase a number of units of an offer product for an offer price;

ii) indicate an acceptance of the offer;

iii) transmit a redemption identifier associated with the offer;

iv) receive the redemption identifier and data indicating a desired product;

v) determine if the desired product is equivalent to the offer product;

vi) authorize a redemption of the number of units of the product if the desired product is equivalent to the offer product; and

vii) receive data indicating a redemption of a fractional number of units of the product, the fractional number less than the number of units.

ABSTRACT

A system to provide a product to a customer includes, in one aspect, establishment of an agreement with a customer to provide a number of units of a product for an agreement price, arrangement with a retailer to have the product redeemed at the retailer, and reception of data indicating a redemption of a fractional number of units of the product. Advantageously, customer behavior can thereby be influenced in a retailer's favor and a retailer is provided with indications of future demand. In addition, a customer is provided with convenience, protection against price increases, and an ability to pay less than a retail price for a product.

Attorney Docket No. 99-082

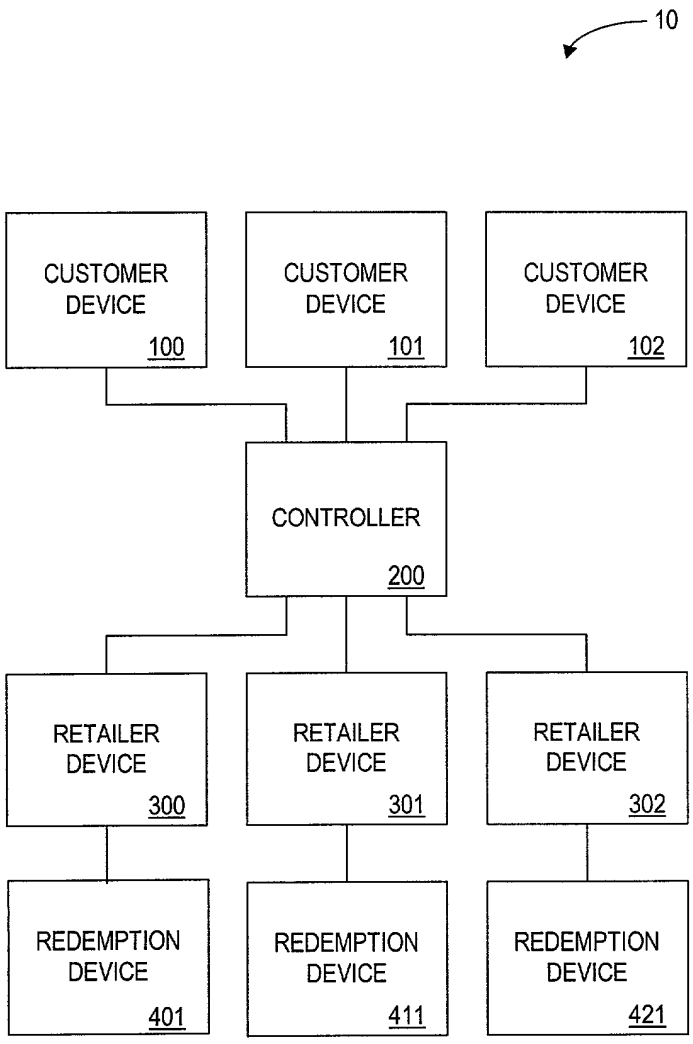

10
CUSTOMER DEVICE 100
CUSTOMER DEVICE 101
CUSTOMER DEVICE 102
CONTROLLER 200
RETAILER DEVICE 300
RETAILER DEVICE 301
RETAILER DEVICE 302
REDEMPTION DEVICE 401
REDEMPTION DEVICE 411
REDEMPTION DEVICE 421

FIG. 1A

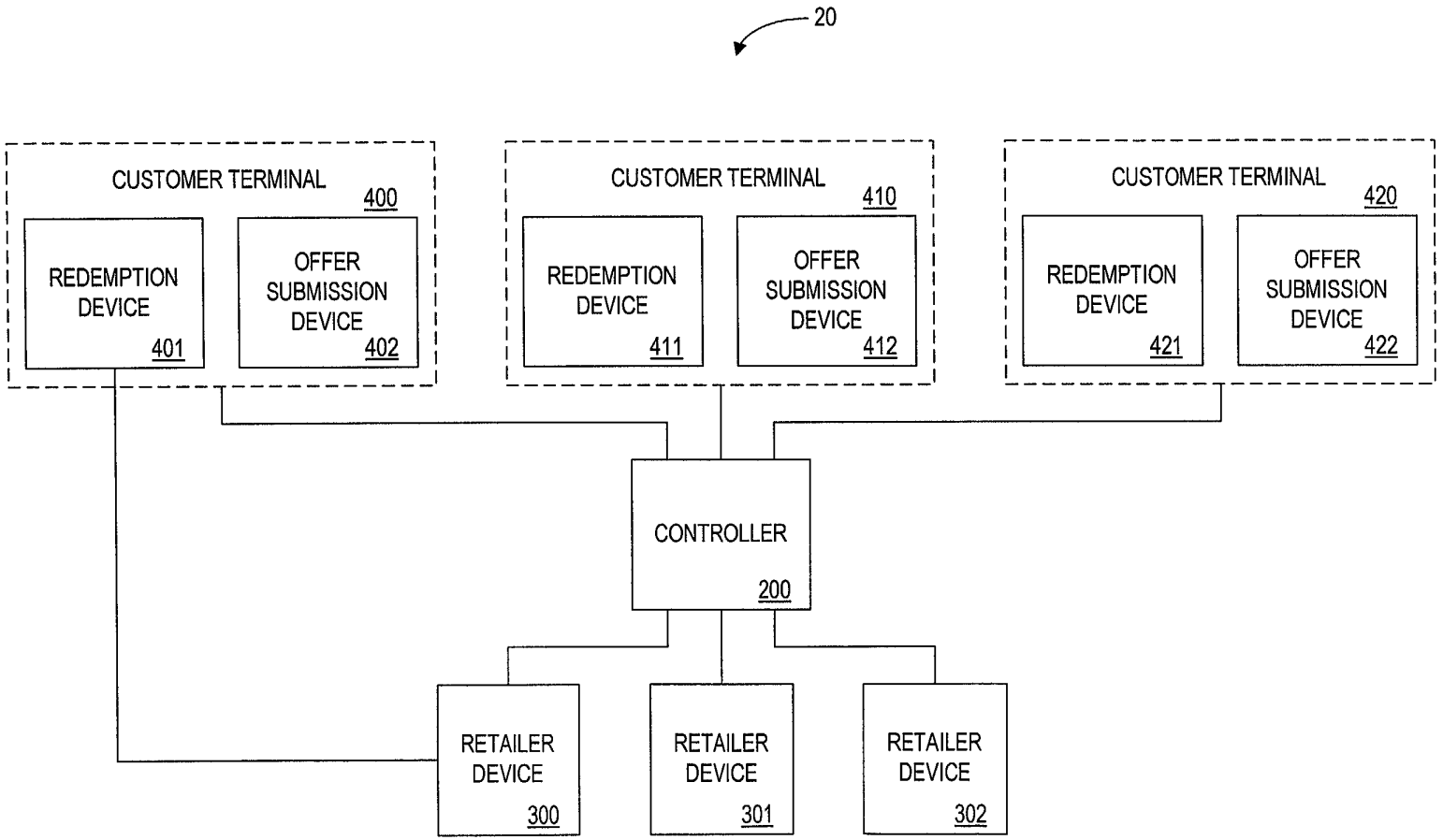

20
CUSTOMER TERMINAL
400
REDEMPTION DEVICE
401
OFFER SUBMISSION DEVICE
402
CUSTOMER TERMINAL
410
REDEMPTION DEVICE
411
OFFER SUBMISSION DEVICE
412
CUSTOMER TERMINAL
420
REDEMPTION DEVICE
421
OFFER SUBMISSION DEVICE
422
CONTROLLER
200
RETAILER DEVICE
300
RETAILER DEVICE
301
RETAILER DEVICE
302

FIG. 1B

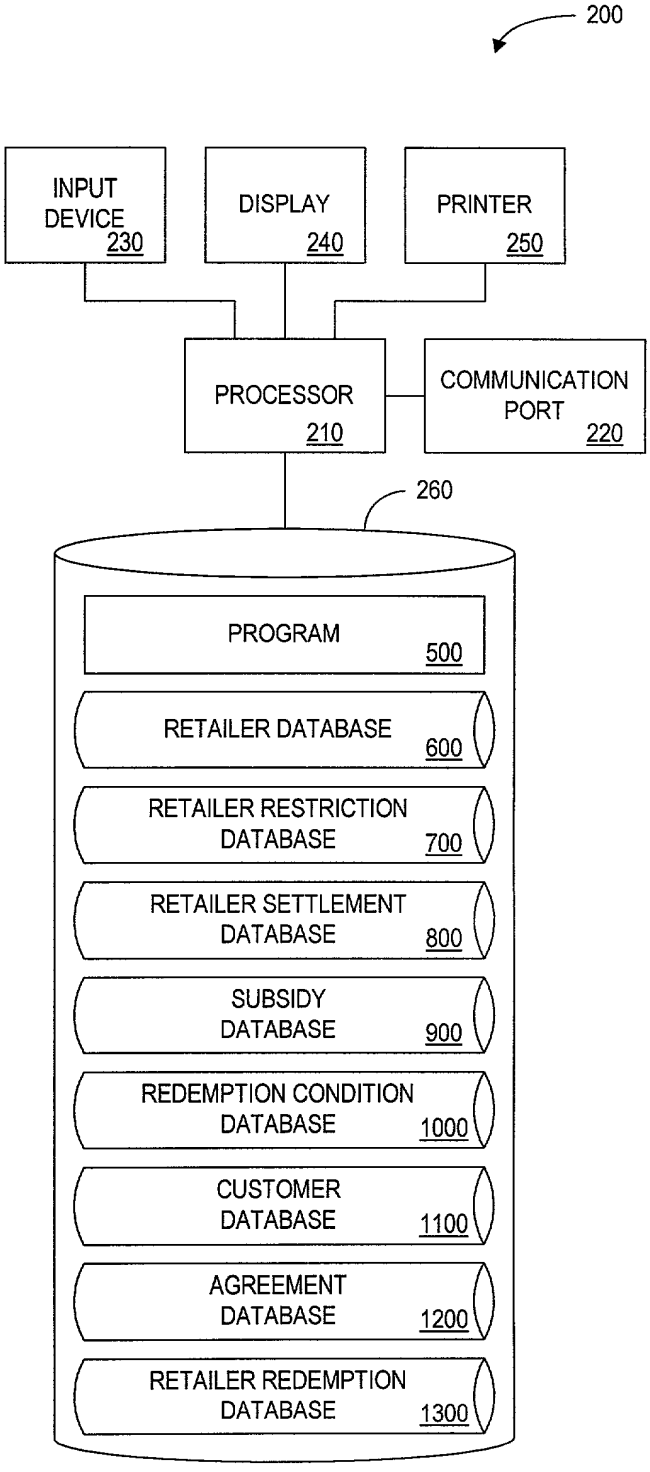

200
INPUT DEVICE 230
DISPLAY 240
PRINTER 250
PROCESSOR 210
COMMUNICATION PORT 220
260
PROGRAM 500
RETAILER DATABASE 600
RETAILER RESTRICTION DATABASE 700
RETAILER SETTLEMENT DATABASE 800
SUBSIDY DATABASE 900
REDEMPTION CONDITION DATABASE 1000
CUSTOMER DATABASE 1100
AGREEMENT DATABASE 1200
RETAILER REDEMPTION DATABASE 1300

FIG. 2A

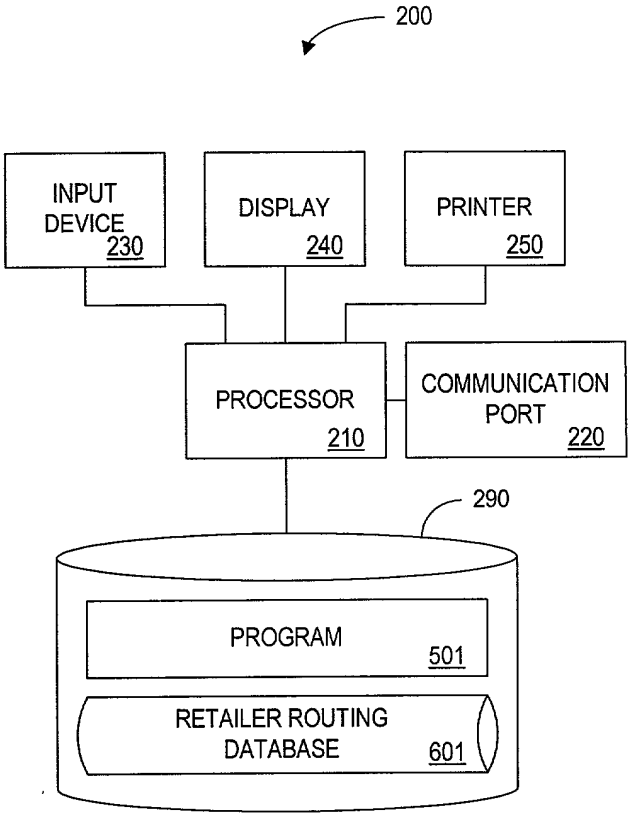

200
INPUT DEVICE 230
DISPLAY 240
PRINTER 250
PROCESSOR 210
COMMUNICATION PORT 220
290
PROGRAM 501
RETAILER ROUTING DATABASE 601

FIG. 2B

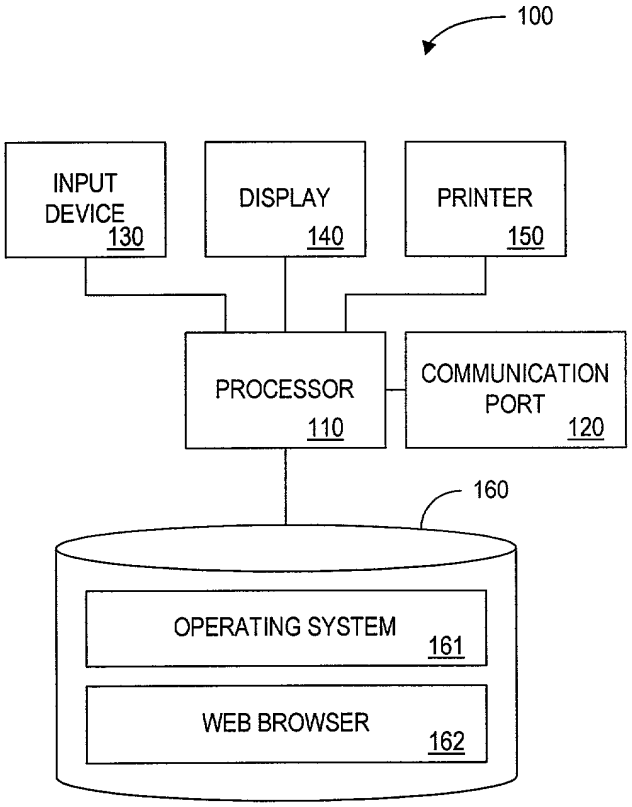

100
INPUT DEVICE 130
DISPLAY 140
PRINTER 150
PROCESSOR 110
COMMUNICATION PORT 120
160
OPERATING SYSTEM 161
WEB BROWSER 162

FIG. 3

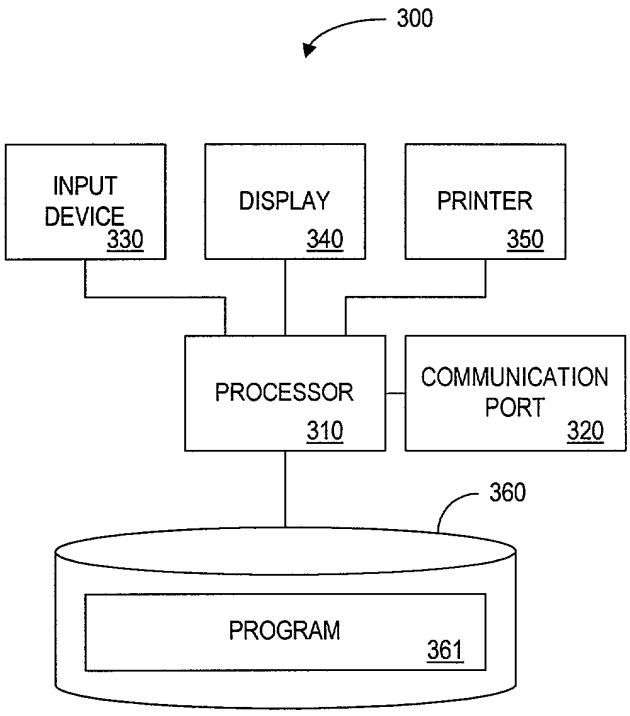

300
INPUT DEVICE 330
DISPLAY 340
PRINTER 350
PROCESSOR 310
COMMUNICATION PORT 320
360
PROGRAM 361

FIG. 4A

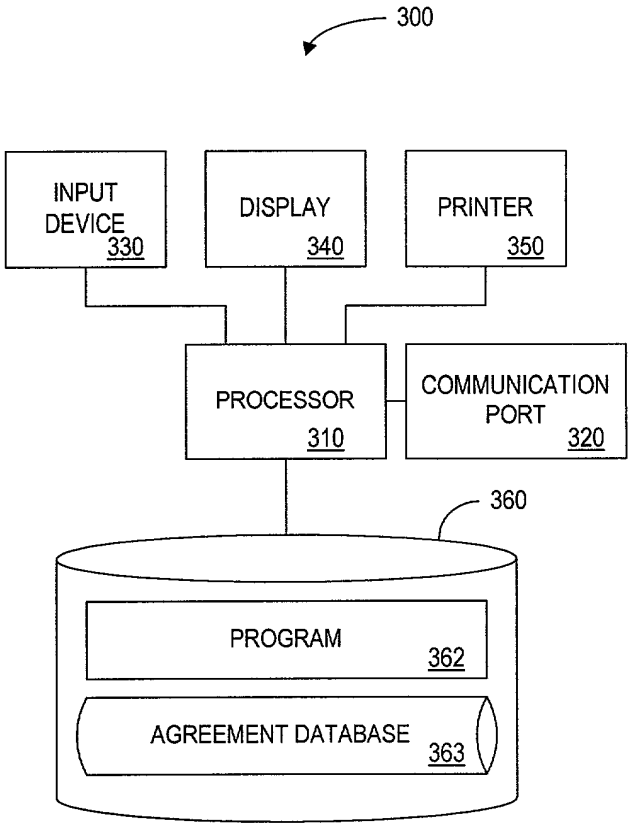

300
INPUT DEVICE 330
DISPLAY 340
PRINTER 350
PROCESSOR 310
COMMUNICATION PORT 320
360
PROGRAM 362
AGREEMENT DATABASE 363

FIG. 4B

Document ID: US 2008/0208702 A1

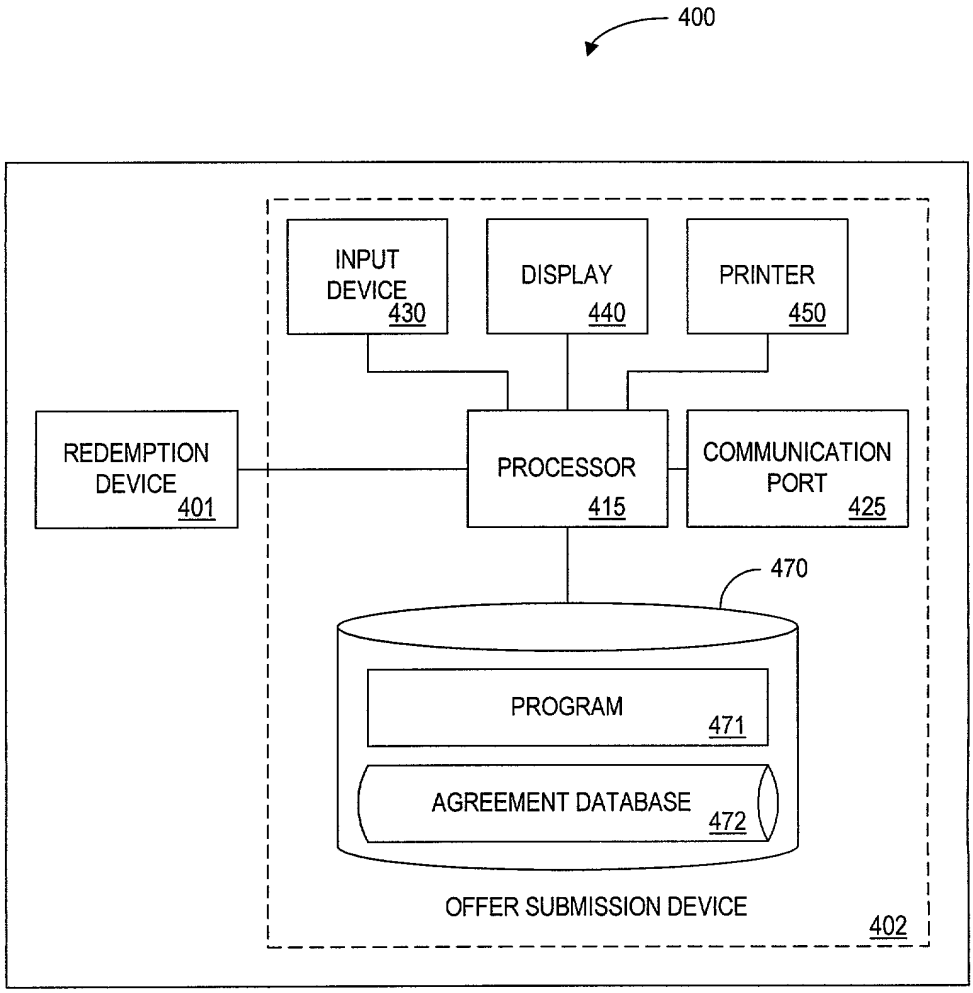
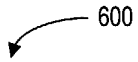


FIG. 5



RETAILER IDENTIFIER 610	LOCATION 620	MANUFACTURER 630	RETAIL PRICE (87) 640	RETAIL PRICE (89) 650	RETAIL PRICE (92) 660
R-0001	123 MAIN ST. STAMFORD, CT 06905	EXXON	$1.50/GALLON	$1.70/GALLON	---
R-0002	460 CENTER AVE. GREENWICH, CT 06700	MOBIL	$1.50/GALLON	$1.64/GALLON	$1.75/GALLON
R-0003	789 MILLS LN. NORWALK, CT 06850	SHELL	$1.45/GALLON	---	---

FIG. 6

Document: US 2005/0256766 A1

700

RETAILER IDENTIFIER 710	PRODUCT 720	MINIMUM AGREEMENT PRICE 730	MINIMUM AGREEMENT QUANTITY 740
R-0001	87	90% OF RETAIL PRICE	50 GALLONS
R-0002	89	PRICE FOR 87	40 GALLONS
R-0003	87	$1.30 /GALLON	---

FIG. 7

RETAILER IDENTIFIER 810	SETTLEMENT PRICE 820	SETTLEMENT SCHEDULE 830	COMMISSION FEE 840
R-0001	RETAIL PRICE	MIDNIGHT	$5/AGREEMENT
R-0002	AGREEMENT PRICE	BEGINNING OF EACH AGREEMENT	---
R-0003	95% OF RETAIL PRICE	EVERY 500 GALLONS REDEEMED	$100 FOR EVERY 1000 GALLONS REDEEMED
R-0004	RETAIL PRICE - $0.15/GALLON	AT REDEMPTION	---

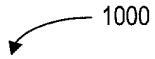
FIG. 8

900

SUBSIDY IDENTIFIER 910	SUBSIDY PROVIDER 920	OBLIGATION 930	SUBSIDY AMOUNT 940
SUB 01	VISA	APPLY FOR A GOLD CARD	$30
SUB 02	MCI	SWITCH LONG DISTANCE SERVICE	$20
SUB 03	MCDONALD'S	BUY FROM THE MCDONALD'S ON THE CORNER EVERY WEEK	$15

FIG. 9

Document: 2012/0265590



REDEMPTION CODE 1010	REDEMPTION CONDITION 1020
C1	MUST REDEEM AT LEAST ONCE A MONTH
C2	MUST REDEEM ON WEEKDAYS BETWEEN 2 AND 4 PM
C3	MUST ALWAYS USE SELF SERVICE

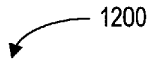
FIG. 10

Attorney Docket No. 50277-2400

1100

NAME 1110	CUSTOMER IDENTIFIER 1120	CREDIT CARD NUMBER 1130	CONTACT INFORMATION 1140	SUBSIDY CODE 1150	BIND NEXT OFFER FLAG 1160
ALICE BROWN	CUST 001	1234-5678-9101-1121	203-333-4444	SUB 01	YES
CHARLIE DOE	CUST 002	1111-2222-3333-4444	CD@ EMAIL.NET	SUB 02	NO
EVAN FIELD	CUST 003	3141-5926-5358-9793	123 MAIN ST. ANYTOWN, USA	SUB 03	NO

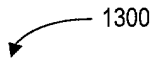
FIG. 11



REDEMPTION IDENTIFIER 1210	CUSTOMER IDENTIFIER 1220	PRODUCT 1230	AGREEMENT PRICE 1240	RETAILER IDENTIFIER 1250	QUANTITY REMAINING 1260	REDEMPTION CODE 1270
RED 0015	CUST 001	89	80% OF RETAIL PRICE	R-0001	50 GALLONS	C1
RED 0024	CUST 002	87	$1.45/GALLON	R-0002	3 GALLONS	C2
RED 0036	CUST 003	92	$50 FOR 30 GALLONS	R-0003 R-0004	25 GALLONS	C3

FIG. 12

Doc #: 6,076,069 Date: 06/13/2000



R-0001 1310			
CUSTOMER IDENTIFIER 1320	PRODUCT 1330	QUANTITY REDEEMED 1340	RETAIL PRICE 1350
CUST 888	87	15 GALLONS	$1.50 PER GALLON
CUST 001	89	20 GALLONS	$1.65 PER GALLON
CUST 999	92	7.5 GALLONS	$1.75 PER GALLON

FIG. 13

Document: US 2006/0064346 A1

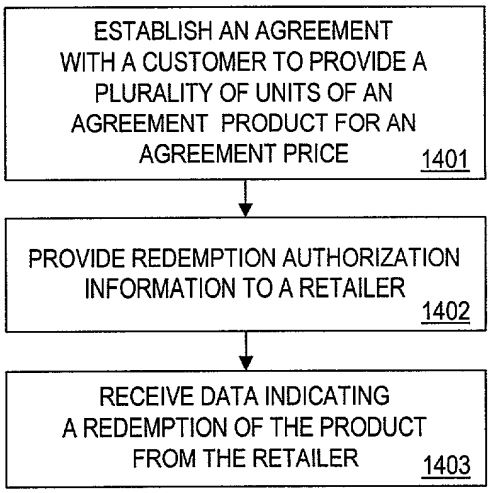


FIG. 14

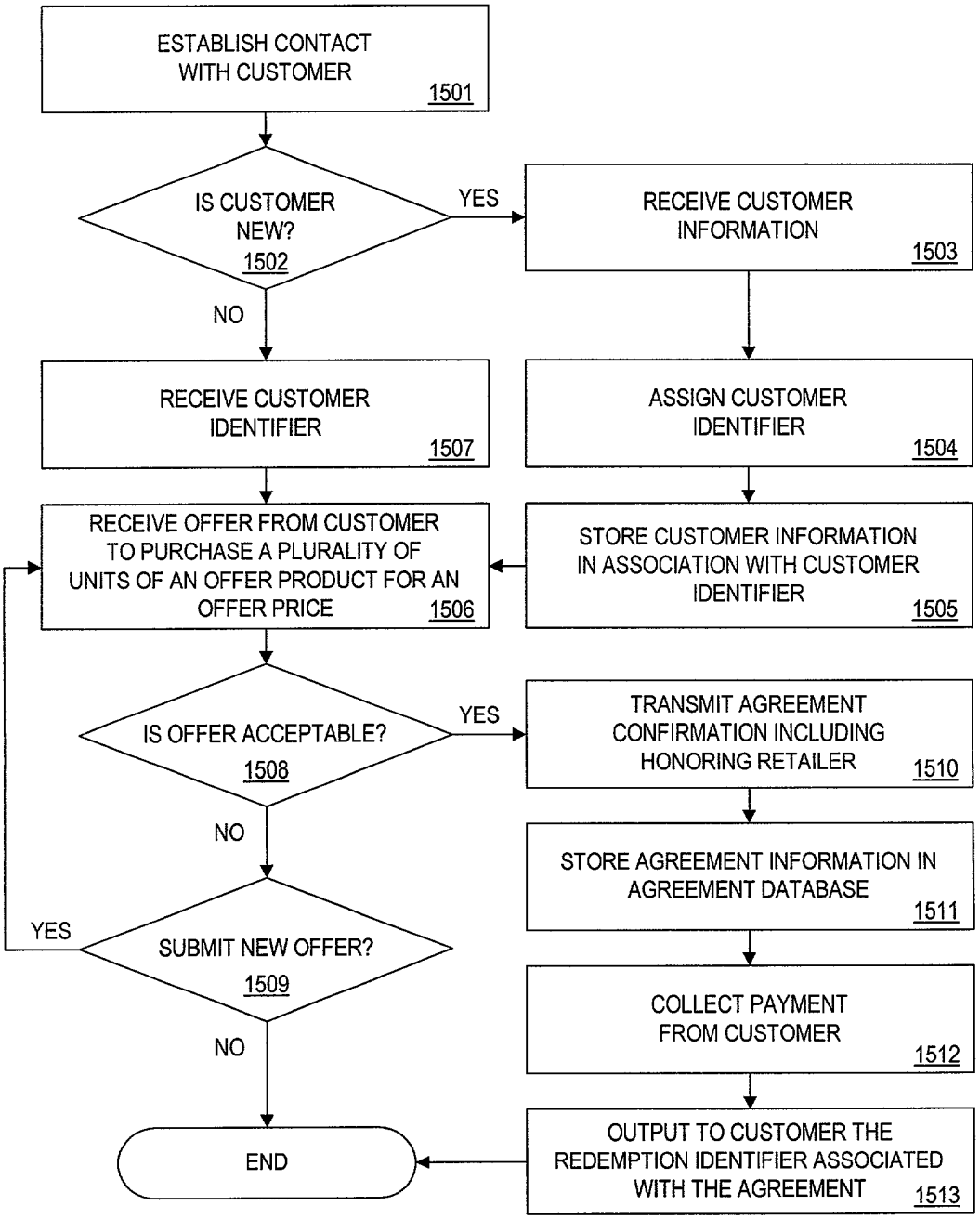

ESTABLISH CONTACT WITH CUSTOMER
1501
IS CUSTOMER NEW?
1502
YES
RECEIVE CUSTOMER INFORMATION
1503
NO
RECEIVE CUSTOMER IDENTIFIER
1507
ASSIGN CUSTOMER IDENTIFIER
1504
RECEIVE OFFER FROM CUSTOMER TO PURCHASE A PLURALITY OF UNITS OF AN OFFER PRODUCT FOR AN OFFER PRICE
1506
STORE CUSTOMER INFORMATION IN ASSOCIATION WITH CUSTOMER IDENTIFIER
1505
IS OFFER ACCEPTABLE?
1508
YES
TRANSMIT AGREEMENT CONFIRMATION INCLUDING HONORING RETAILER
1510
NO
STORE AGREEMENT INFORMATION IN AGREEMENT DATABASE
1511
YES
SUBMIT NEW OFFER?
1509
COLLECT PAYMENT FROM CUSTOMER
1512
NO
END
OUTPUT TO CUSTOMER THE REDEMPTION IDENTIFIER ASSOCIATED WITH THE AGREEMENT
1513

FIG. 15

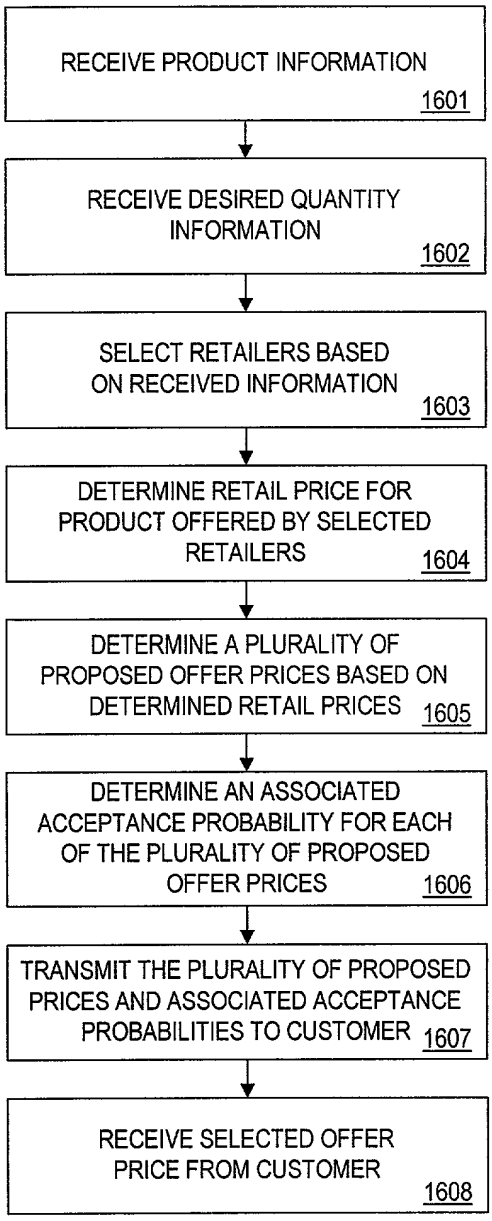

RECEIVE PRODUCT INFORMATION
1601
RECEIVE DESIRED QUANTITY INFORMATION
1602
SELECT RETAILERS BASED ON RECEIVED INFORMATION
1603
DETERMINE RETAIL PRICE FOR PRODUCT OFFERED BY SELECTED RETAILERS
1604
DETERMINE A PLURALITY OF PROPOSED OFFER PRICES BASED ON DETERMINED RETAIL PRICES
1605
DETERMINE AN ASSOCIATED ACCEPTANCE PROBABILITY FOR EACH OF THE PLURALITY OF PROPOSED OFFER PRICES
1606
TRANSMIT THE PLURALITY OF PROPOSED PRICES AND ASSOCIATED ACCEPTANCE PROBABILITIES TO CUSTOMER
1607
RECEIVE SELECTED OFFER PRICE FROM CUSTOMER
1608

FIG. 16

1700

ONE ACCEPTED OFFER	
AMOUNT LESS THAN AVERAGE RETAIL PRICE	ASSOCIATED ACCEPTANCE PROBABILITY
$0.05	98%
$0.10	96%
$0.12	90%
$0.15	80%

1750

ZERO ACCEPTED OFFERS	
AMOUNT LESS THAN AVERAGE RETAIL PRICE	ASSOCIATED ACCEPTANCE PROBABILITY
$0.05	100%
$0.10	100%
$0.12	100%
$0.15	100%

FIG. 17

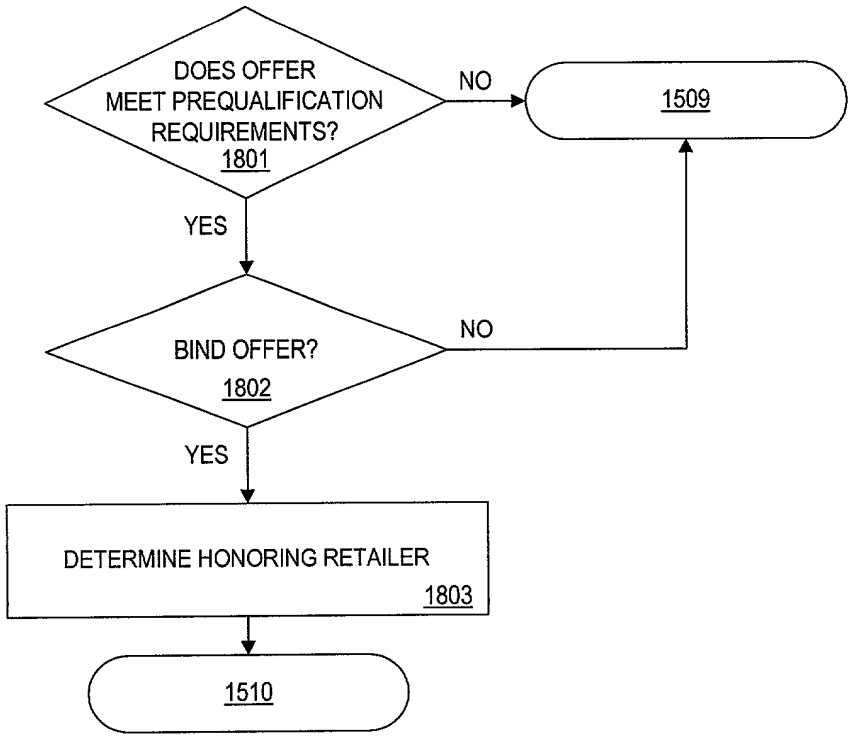

DOES OFFER MEET PREQUALIFICATION REQUIREMENTS? 1801
NO
1509
YES
BIND OFFER? 1802
NO
YES
DETERMINE HONORING RETAILER 1803
1510

FIG. 18

1900

MANUFACTURER 1910	% TARGET MARKET SHARE 1920	% ACTUAL MARKET SHARE 1930	% DIFFERENCE 1940
EXXON	25%	20%	-5
MOBIL	20%	22%	2
SHELL	30%	35%	5

FIG. 19A

EXXON -- 89 OCTANE	
RETAILER IDENTIFIER 1960	TIER 1970
R-0001	LOW
R-0004	LOW
R-0007	MEDIUM
R-0010	LOW

FIG. 19B

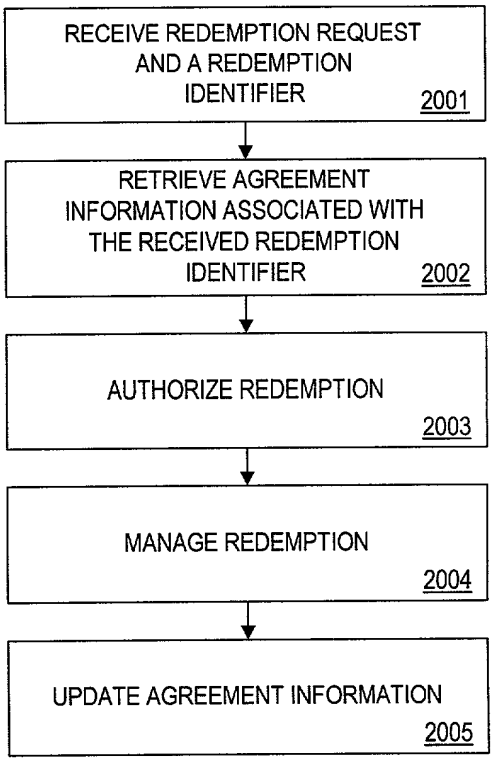

RECEIVE REDEMPTION REQUEST AND A REDEMPTION IDENTIFIER
2001
RETRIEVE AGREEMENT INFORMATION ASSOCIATED WITH THE RECEIVED REDEMPTION IDENTIFIER
2002
AUTHORIZE REDEMPTION
2003
MANAGE REDEMPTION
2004
UPDATE AGREEMENT INFORMATION
2005

FIG. 20

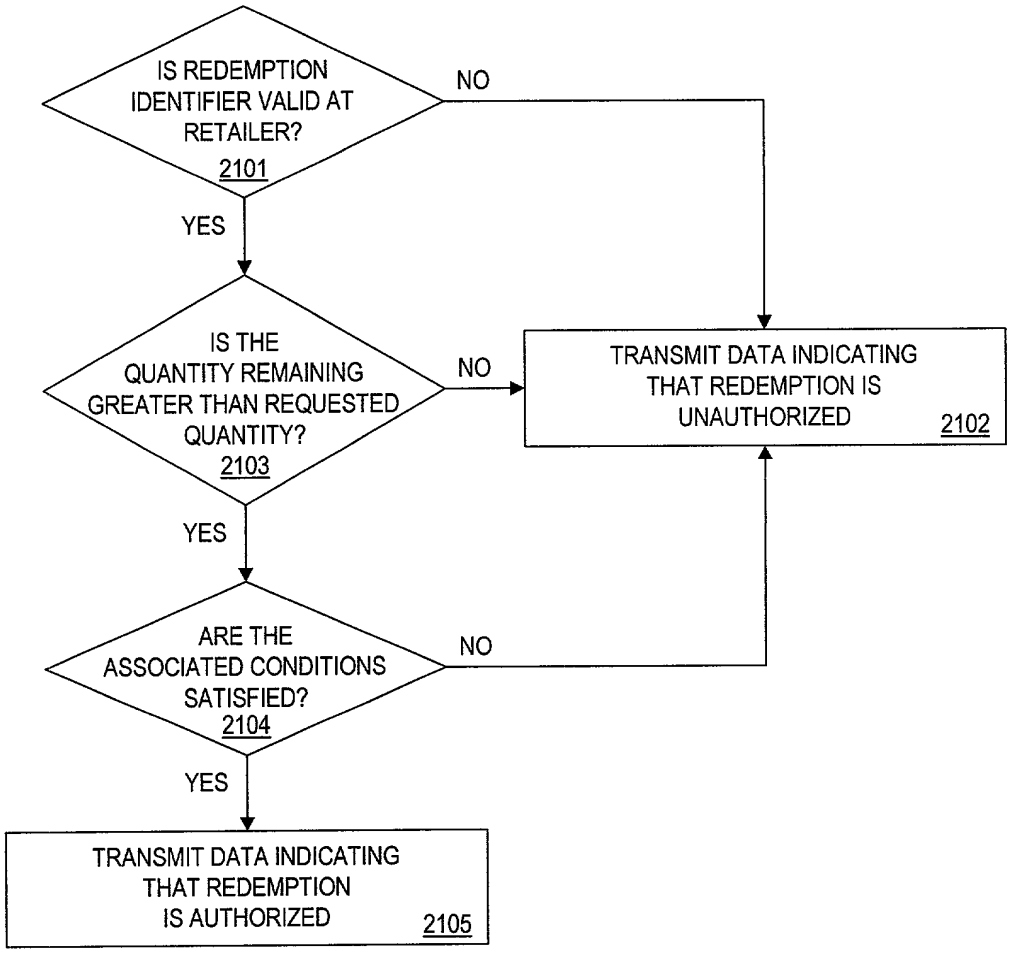

IS REDEMPTION IDENTIFIER VALID AT RETAILER?
2101
NO
YES
IS THE QUANTITY REMAINING GREATER THAN REQUESTED QUANTITY?
2103
NO
TRANSMIT DATA INDICATING THAT REDEMPTION IS UNAUTHORIZED
2102
YES
ARE THE ASSOCIATED CONDITIONS SATISFIED?
2104
NO
YES
TRANSMIT DATA INDICATING THAT REDEMPTION IS AUTHORIZED
2105

FIG. 21

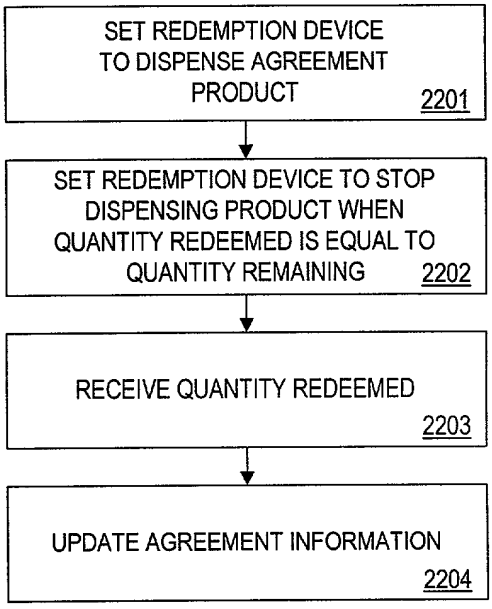

SET REDEMPTION DEVICE TO DISPENSE AGREEMENT PRODUCT
2201
SET REDEMPTION DEVICE TO STOP DISPENSING PRODUCT WHEN QUANTITY REDEEMED IS EQUAL TO QUANTITY REMAINING
2202
RECEIVE QUANTITY REDEEMED
2203
UPDATE AGREEMENT INFORMATION
2204

FIG. 22

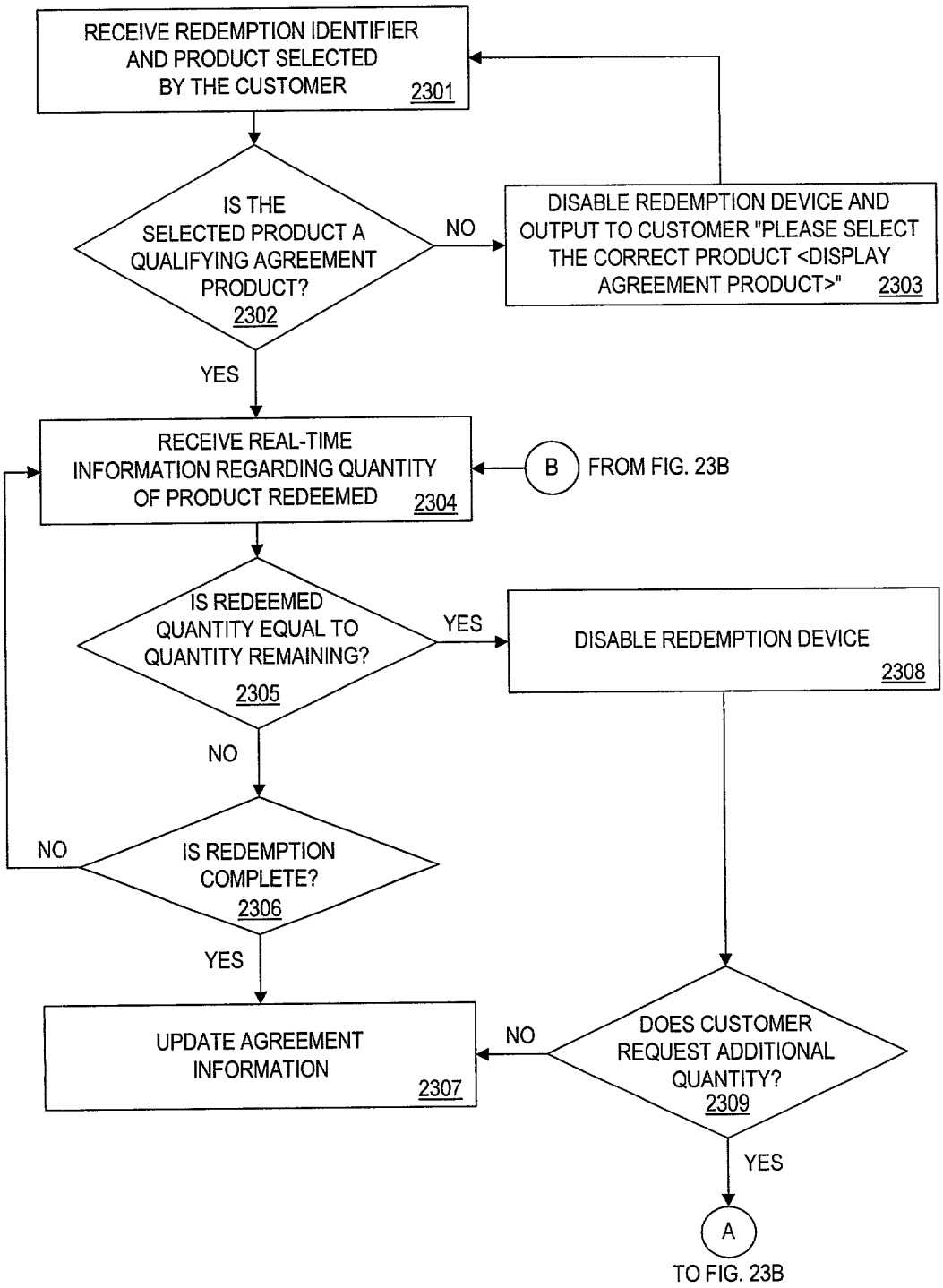

RECEIVE REDEMPTION IDENTIFIER AND PRODUCT SELECTED BY THE CUSTOMER 2301
IS THE SELECTED PRODUCT A QUALIFYING AGREEMENT PRODUCT? 2302
NO
DISABLE REDEMPTION DEVICE AND OUTPUT TO CUSTOMER "PLEASE SELECT THE CORRECT PRODUCT <DISPLAY AGREEMENT PRODUCT>" 2303
YES
RECEIVE REAL-TIME INFORMATION REGARDING QUANTITY OF PRODUCT REDEEMED 2304
B
FROM FIG. 23B
IS REDEEMED QUANTITY EQUAL TO QUANTITY REMAINING? 2305
YES
DISABLE REDEMPTION DEVICE 2308
NO
NO
IS REDEMPTION COMPLETE? 2306
YES
UPDATE AGREEMENT INFORMATION 2307
NO
DOES CUSTOMER REQUEST ADDITIONAL QUANTITY? 2309
YES
A
TO FIG. 23B

FIG. 23A

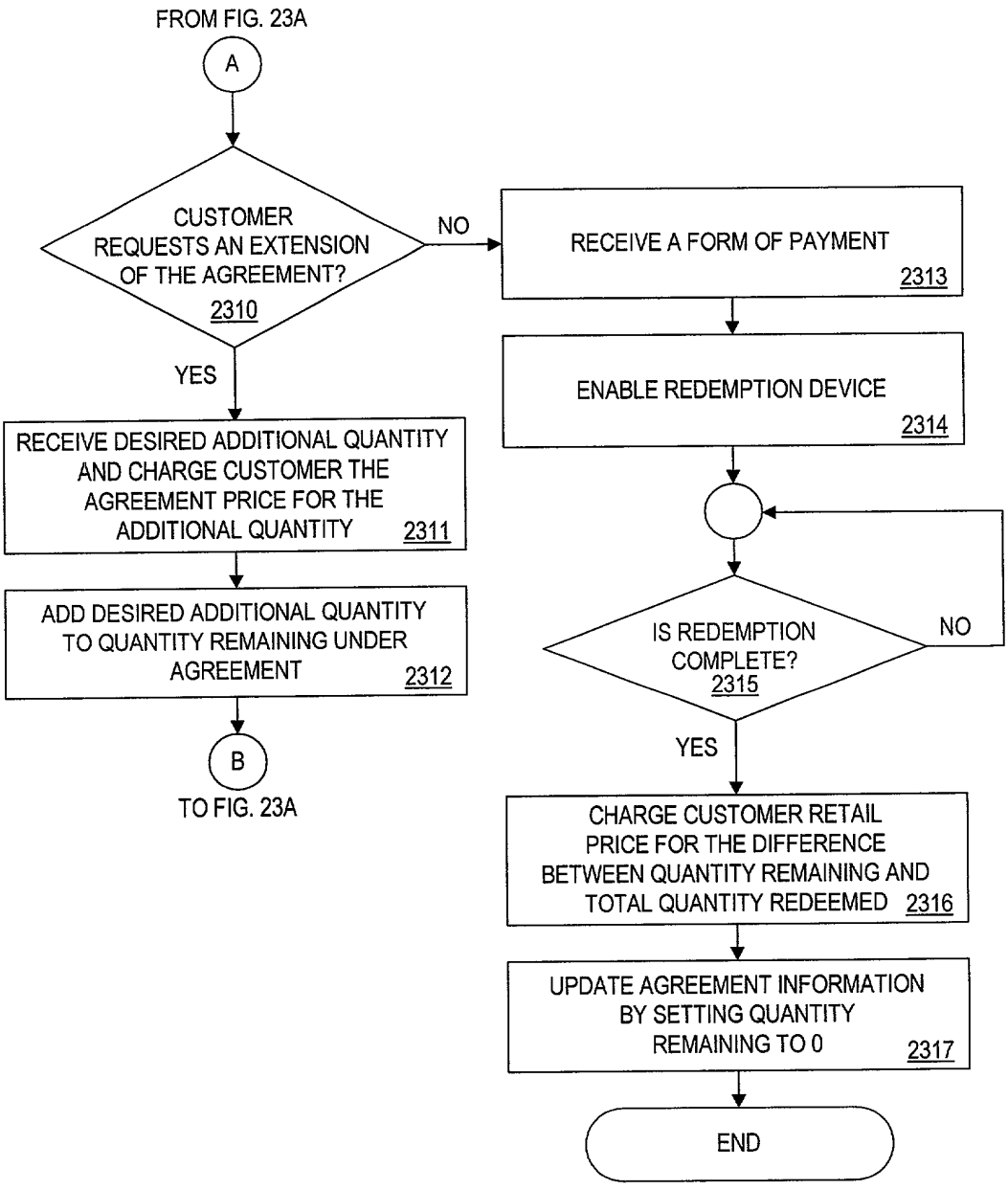

FROM FIG. 23A
A
CUSTOMER REQUESTS AN EXTENSION OF THE AGREEMENT? 2310
NO
YES
RECEIVE A FORM OF PAYMENT 2313
ENABLE REDEMPTION DEVICE 2314
RECEIVE DESIRED ADDITIONAL QUANTITY AND CHARGE CUSTOMER THE AGREEMENT PRICE FOR THE ADDITIONAL QUANTITY 2311
ADD DESIRED ADDITIONAL QUANTITY TO QUANTITY REMAINING UNDER AGREEMENT 2312
IS REDEMPTION COMPLETE? 2315
NO
YES
B
TO FIG. 23A
CHARGE CUSTOMER RETAIL PRICE FOR THE DIFFERENCE BETWEEN QUANTITY REMAINING AND TOTAL QUANTITY REDEEMED 2316
UPDATE AGREEMENT INFORMATION BY SETTING QUANTITY REMAINING TO 0 2317
END

FIG. 23B

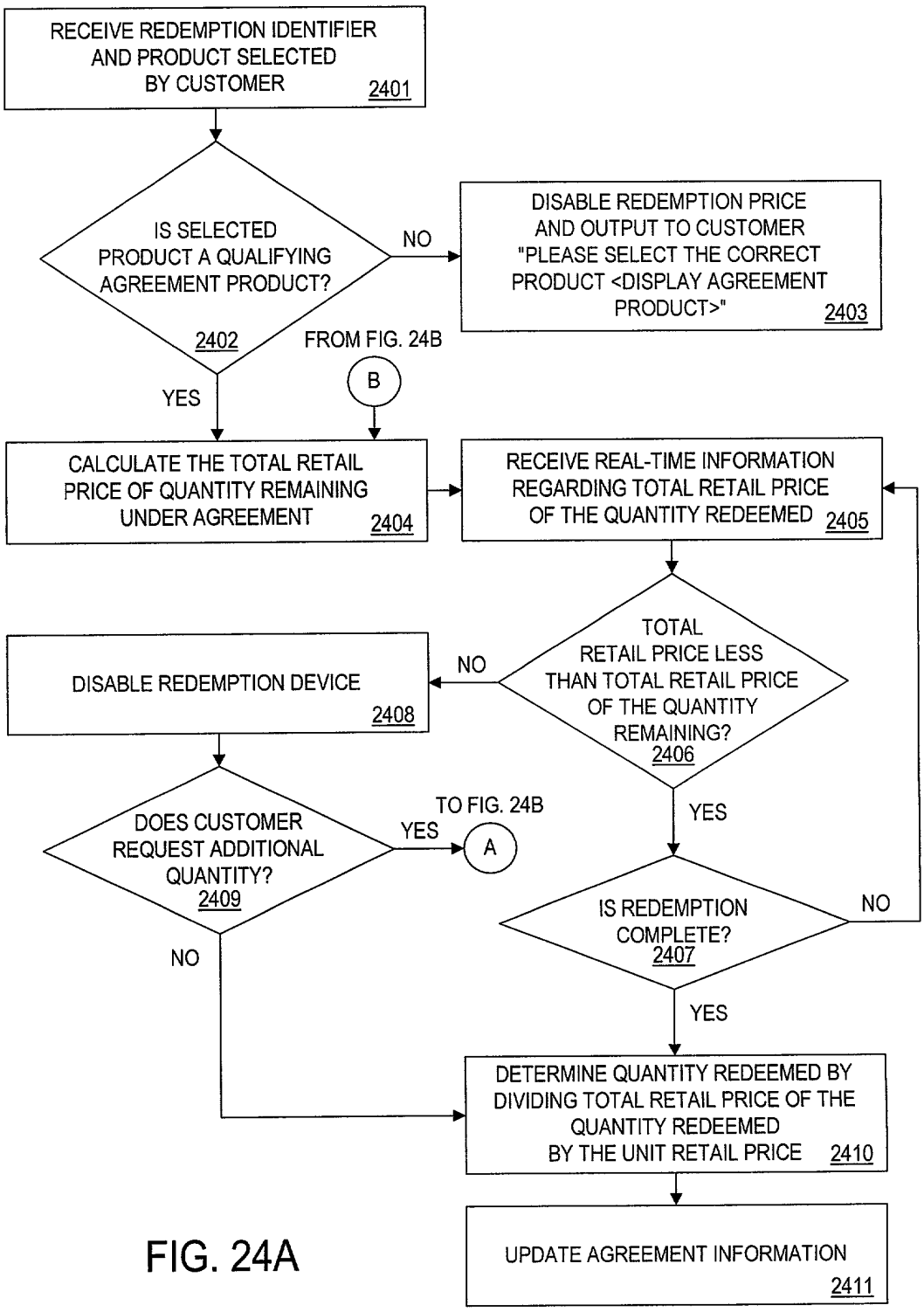

RECEIVE REDEMPTION IDENTIFIER AND PRODUCT SELECTED BY CUSTOMER 2401
IS SELECTED PRODUCT A QUALIFYING AGREEMENT PRODUCT? 2402
NO
DISABLE REDEMPTION PRICE AND OUTPUT TO CUSTOMER "PLEASE SELECT THE CORRECT PRODUCT <DISPLAY AGREEMENT PRODUCT>" 2403
YES
FROM FIG. 24B
B
CALCULATE THE TOTAL RETAIL PRICE OF QUANTITY REMAINING UNDER AGREEMENT 2404
RECEIVE REAL-TIME INFORMATION REGARDING TOTAL RETAIL PRICE OF THE QUANTITY REDEEMED 2405
TOTAL RETAIL PRICE LESS THAN TOTAL RETAIL PRICE OF THE QUANTITY REMAINING? 2406
NO
DISABLE REDEMPTION DEVICE 2408
YES
IS REDEMPTION COMPLETE? 2407
NO
YES
DOES CUSTOMER REQUEST ADDITIONAL QUANTITY? 2409
YES
TO FIG. 24B
A
NO
DETERMINE QUANTITY REDEEMED BY DIVIDING TOTAL RETAIL PRICE OF THE QUANTITY REDEEMED BY THE UNIT RETAIL PRICE 2410
UPDATE AGREEMENT INFORMATION 2411

FIG. 24A

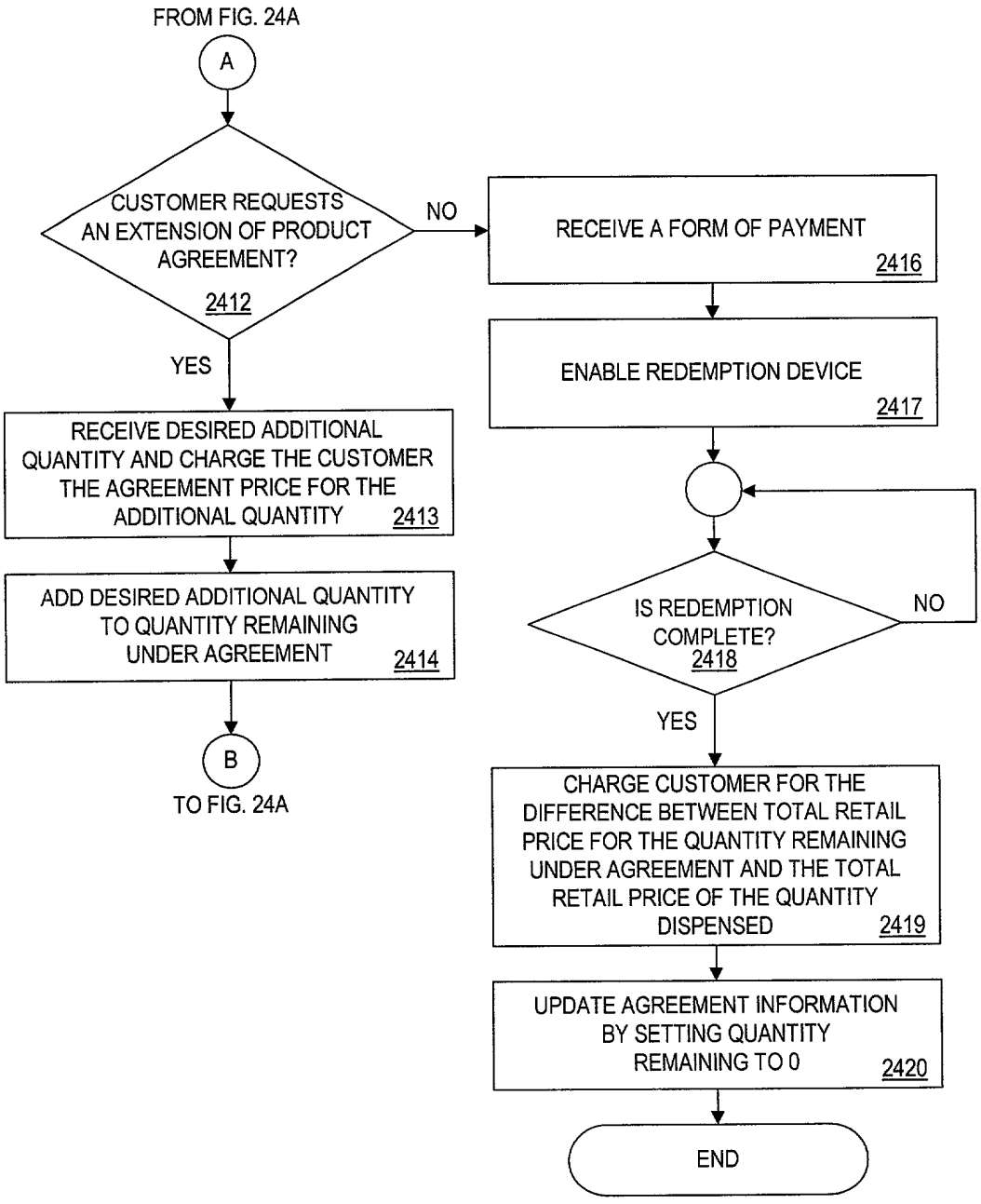

FROM FIG. 24A
A
CUSTOMER REQUESTS AN EXTENSION OF PRODUCT AGREEMENT?
2412
NO
YES
RECEIVE A FORM OF PAYMENT
2416
ENABLE REDEMPTION DEVICE
2417
RECEIVE DESIRED ADDITIONAL QUANTITY AND CHARGE THE CUSTOMER THE AGREEMENT PRICE FOR THE ADDITIONAL QUANTITY
2413
ADD DESIRED ADDITIONAL QUANTITY TO QUANTITY REMAINING UNDER AGREEMENT
2414
IS REDEMPTION COMPLETE?
2418
NO
YES
B
TO FIG. 24A
CHARGE CUSTOMER FOR THE DIFFERENCE BETWEEN TOTAL RETAIL PRICE FOR THE QUANTITY REMAINING UNDER AGREEMENT AND THE TOTAL RETAIL PRICE OF THE QUANTITY DISPENSED
2419
UPDATE AGREEMENT INFORMATION BY SETTING QUANTITY REMAINING TO 0
2420
END

FIG. 24B

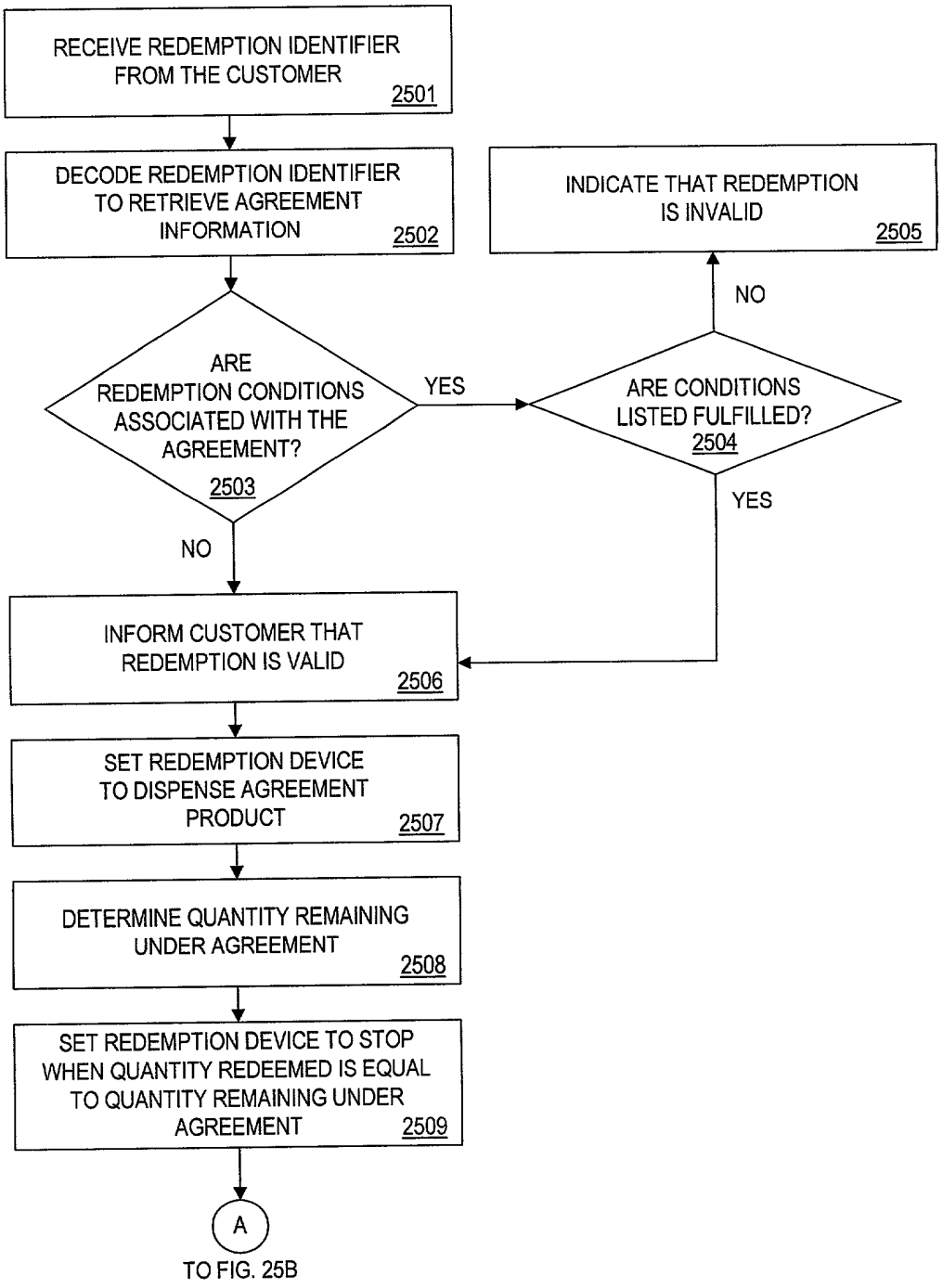

RECEIVE REDEMPTION IDENTIFIER FROM THE CUSTOMER
2501
DECODE REDEMPTION IDENTIFIER TO RETRIEVE AGREEMENT INFORMATION
2502
ARE REDEMPTION CONDITIONS ASSOCIATED WITH THE AGREEMENT?
2503
YES
NO
ARE CONDITIONS LISTED FULFILLED?
2504
NO
YES
INDICATE THAT REDEMPTION IS INVALID
2505
INFORM CUSTOMER THAT REDEMPTION IS VALID
2506
SET REDEMPTION DEVICE TO DISPENSE AGREEMENT PRODUCT
2507
DETERMINE QUANTITY REMAINING UNDER AGREEMENT
2508
SET REDEMPTION DEVICE TO STOP WHEN QUANTITY REDEEMED IS EQUAL TO QUANTITY REMAINING UNDER AGREEMENT
2509
A
TO FIG. 25B

FIG. 25A

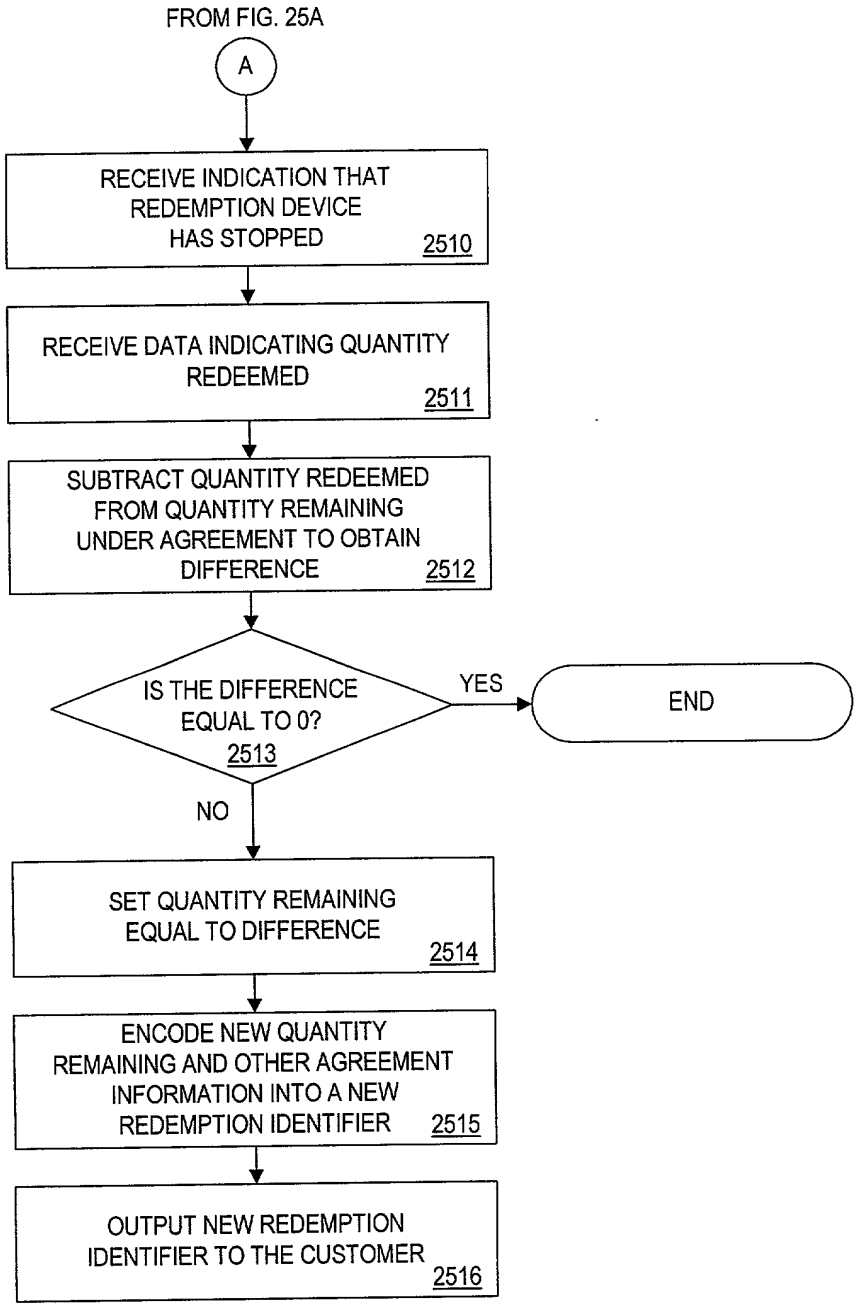

FROM FIG. 25A
A
RECEIVE INDICATION THAT REDEMPTION DEVICE HAS STOPPED 2510
RECEIVE DATA INDICATING QUANTITY REDEEMED 2511
SUBTRACT QUANTITY REDEEMED FROM QUANTITY REMAINING UNDER AGREEMENT TO OBTAIN DIFFERENCE 2512
IS THE DIFFERENCE EQUAL TO 0? 2513
YES
END
NO
SET QUANTITY REMAINING EQUAL TO DIFFERENCE 2514
ENCODE NEW QUANTITY REMAINING AND OTHER AGREEMENT INFORMATION INTO A NEW REDEMPTION IDENTIFIER 2515
OUTPUT NEW REDEMPTION IDENTIFIER TO THE CUSTOMER 2516

FIG. 25B

Document - 06/10/2005 09:44:00

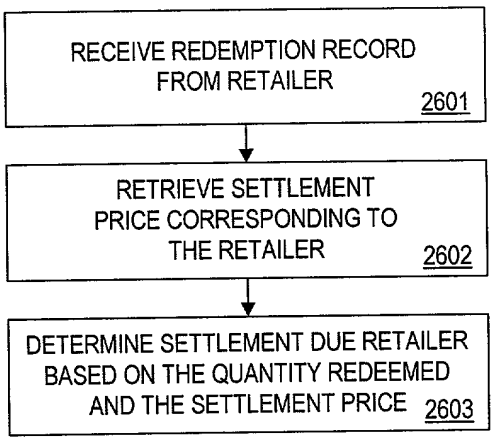


FIG. 26

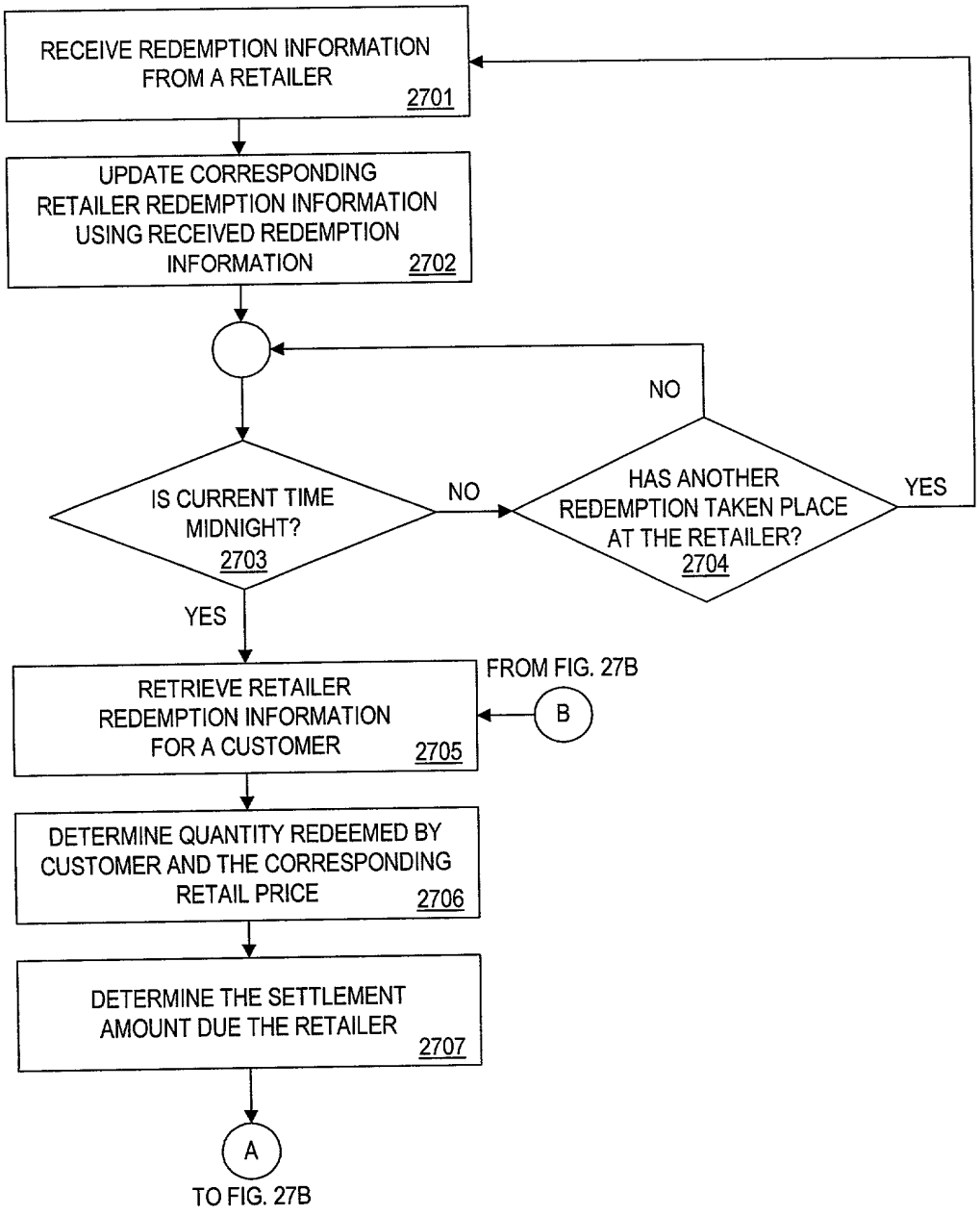

RECEIVE REDEMPTION INFORMATION FROM A RETAILER
2701
UPDATE CORRESPONDING RETAILER REDEMPTION INFORMATION USING RECEIVED REDEMPTION INFORMATION
2702
IS CURRENT TIME MIDNIGHT?
2703
NO
HAS ANOTHER REDEMPTION TAKEN PLACE AT THE RETAILER?
2704
YES
NO
YES
FROM FIG. 27B
B
RETRIEVE RETAILER REDEMPTION INFORMATION FOR A CUSTOMER
2705
DETERMINE QUANTITY REDEEMED BY CUSTOMER AND THE CORRESPONDING RETAIL PRICE
2706
DETERMINE THE SETTLEMENT AMOUNT DUE THE RETAILER
2707
A
TO FIG. 27B

FIG. 27A

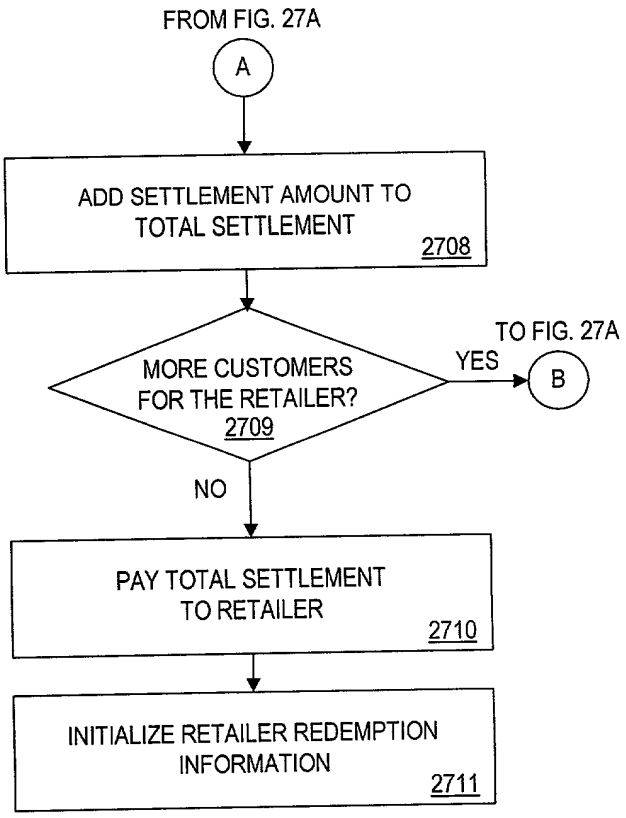

FROM FIG. 27A
A
ADD SETTLEMENT AMOUNT TO TOTAL SETTLEMENT
2708
MORE CUSTOMERS FOR THE RETAILER?
2709
YES
TO FIG. 27A
B
NO
PAY TOTAL SETTLEMENT TO RETAILER
2710
INITIALIZE RETAILER REDEMPTION INFORMATION
2711

FIG. 27B

Docket No.
99-082

Declaration and Power of Attorney For Patent Application

English Language Declaration

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

SYSTEM TO ESTABLISH A CUSTOMER-SPECIFIED PRICE OF A PRODUCT AND TO MANAGE REDEMPTION OF THE PRODUCT AT THE ESTABLISHED PRICE

the specification of which

(check one)

☒ is attached hereto.

☐ was filed on _____ as United States Application No. or PCT International Application Number _____

and was amended on _____

(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d) or Section 365(b) of any foreign application(s) for patent or inventor's certificate, or Section 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate or PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)			Priority Not Claimed
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	☐
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	☐
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	☐

I hereby claim the benefit under 35 U.S.C. Section 119(e) of any United States provisional application(s) listed below:

60/173,458	**December 29, 1999**
(Application Serial No.)	(Filing Date)
(Application Serial No.)	(Filing Date)
(Application Serial No.)	(Filing Date)

I hereby claim the benefit under 35 U. S. C. Section 120 of any United States application(s), or Section 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. Section 112, I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, C. F. R., Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application:

09/337,906	**June 22, 1999**	**Pending**
(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)
08/889,589	**July 8, 1997**	**Pending**
(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)
(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. *(list name and registration number)*

22927

22927

PATENT TRADEMARK OFFICE

Send Correspondence to: **Nandu A. Talwalkar**

22927

Direct Telephone Calls to: *(name and telephone number)*

Nandu A. Talwalkar, Telephone number: 203-461-7061

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Sole or first inventor's signature Date
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Post Office Address **Same as above**

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Second inventor's signature Date
Residence **2285 North Street, Fairfield, CT 06430**
Citizenship **El Salvador**
Post Office Address **Same as above**

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Third inventor's signature Date
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Post Office Address **Same as above**

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Fourth inventor's signature Date
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Post Office Address **Same as above**

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Fifth inventor's signature Date
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Post Office Address **Same as above**

Full name of sixth inventor, if any **John M. PACKES, Jr.**
Sixth inventor's signature Date
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Citizenship **USA**
Post Office Address **Same as above**

Full name of seventh inventor, if any **Geoffrey M. GELMAN**
Seventh inventor's signature Date
Residence **21 Belltown Road, Stamford, CT 06905**
Citizenship **USA**
Post Office Address **Same as above**

Full name of eighth inventor, if
Eighth inventor's signature Date
Residence
Citizenship
Post Office Address

Full name of ninth inventor, if any
Ninth inventor's signature Date
Residence
Citizenship
Post Office Address

Full name of tenth inventor, if any
Tenth inventor's signature Date
Residence
Citizenship
Post Office Address

Sep 25 2003 12:00AM